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ABSTRACT

This paper reviews the state of the art concerning how learning disabilities (LD) are defined; how students with LD and their families are affected; and how LD can be addressed by interdisciplinary teams of health and education professionals. The emphasis is on dispelling the myth that children with LD are not at serious risk for adverse educational and health outcomes because LD are "mild." Major sections of the paper address the following topics: (1) defining LD (inclusions, exclusions, and subtypes); (2) the role of the health care community (assessment and diagnosis, the importance of diagnosis, medication, and the need for health professionals to collaborate with educators); (3) the role of the education community (early intervention, school-based interventions, medication, the gifted student with learning disabilities, secondary and postsecondary education, and the need to collaborate with health professionals); and (4) the role of parents (the importance of understanding treatment and the emotional impact of LD). Appendices list LD myths and misconceptions and causes of school failure. A glossary is provided. Overviews of the Learning Disabilities Association and the National Health and Education Consortium are also included. (Contains 23 references.) (DB)

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The Invisible Disability:

Understanding Learning Disabilities in the Context of Health and Education

by Pasquale Accardo, MD

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NATIONAL HEALTH & EDUCATION CONSORTIUM
an initiative of the Institute for Educational Leadership

and

LEARNING DISABILITIES ASSOCIATION OF AMERICA

1996

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Dr. Accardo has published 20 books and more than 50 articles on learning disabilities and other developmental concerns. He received his MD from State University of New York, Downstate Medical Center and BS from Saint John's University. In June, Dr. Accardo will become the Director of Pediatrics at the Westchester Institute for Human Development in New York.

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LDA

Learning Disabilities Association of America

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Dear Reader:

For years children with learning disabilities and their parents followed a lonely and isolated path when seeking educational services. Poor public understanding of this condition and little acceptance in the care-giving professions closed off traditional avenues of help.

Today, there is growing understanding and acceptance of learning disabilities among both educators and health care providers. This understanding must be built upon to unite parents, teachers, nurses, doctors and related health and education professionals in partnership to support children and their parents. If we in the child-serving professions hope to provide the necessary guidance and information to those affected by learning disabilities, we must work together to identify, assess and assist our nation's children.

If we do not work together, appropriate supports and services may not be in place. The results — both short- and long-term — can be disastrous for students with learning disabilities. And, as surely as death and taxes, these young children will grow up to be adults. We must ensure that they are able and ready to participate fully in our nation's economic, intellectual and social life.

The Learning Disabilities Association of America (LDA) hopes that this unique report will help you see that learning disabilities affect the whole child and touch all aspects of an individual's life. We hope as well that this report will provide you with a better understanding of what educators and health professionals can do... and what they can do together.

LDA is pleased to join the National Health & Education Consortium in bringing you this report. We hope that you will find the information truly helpful.

Ann Kornblet

Ann Kornblet
President
Learning Disabilities Association of America

Formerly ACLD, Inc.
A National Non-Profit Organization

Foreword

It is the mission of the National Health & Education Consortium (NHEC) to provide education and health professionals, parents, and policymakers at the federal, state and local levels with information on how children's health status and educational achievement are linked — and, vice versa, on how educational success or failure relates to health status and health behaviors. Because learning disabilities are so common, and so commonly misunderstood, and because interdisciplinary teamwork is essential to assisting affected children, NHEC has commissioned this report in partnership with the Learning Disabilities Association of America.

It is our hope that this paper — the eleventh in NHEC's occasional paper series — will help explain the following:

- how learning disabilities are defined;
- how students with learning disabilities and their families are affected; and
- how learning disabilities can be addressed by interdisciplinary teams of health and educational professionals.

In addition, we sincerely hope to help dispel what is known as the "myth of mildness" — that is to say, the notion that children with learning disabilities are not at serious risk for adverse educational and health outcomes because specific learning disabilities are "mild." On the contrary, the impact of learning disabilities can be profound.

The impact of learning disabilities on a child's educational outcomes can lead to extreme frustrations for students, teachers and parents alike. Continued school failure can erode a child's self confidence and subsequent ability to get and hold a job, to participate in higher education, or to become a life-long learner. Similarly, frustration with school failure may prompt students to turn to risky health behaviors like sexual intercourse, and alcohol or drug abuse to feel better about themselves and to have something they can do successfully. Obviously, lower educational attainment and attendant lessening of skills and economic opportunities also bode ill for a child's opportunity and ability to access health services during his or her lifetime. For these and a host of other reasons, learning disabilities can markedly affect otherwise low-risk children and seriously compound the problems of children already at risk for school and health problems. This is especially true because learning disabilities are "invisible disabilities," often difficult to recognize or attributed to poor student motivation.

We feel that Dr. Pasquale Accardo — an expert in the field of learning disabilities — has done a superb job of translating the medical and educational issues associated with "neurologically based specific learning disabilities" into clear and concise descriptions that are set in the real life context of cross-sector cooperation. We hope that you will find this occasional paper helpful to your understanding of learning disabilities, how they impact the health and education of children, and their implications for health and education professionals who serve children.

Tamara Lucas Copeland
Director

1996

Abstract

With incidence rates conservatively placed at between 5 and 15% of the population, learning disabilities are the most common developmental disability in children and adults. The term "learning disabilities" describes a group of chronic neurological deficits that affect the ability to master new learning commensurate with a person's intelligence. Although the disorder can benefit from early and accurate diagnosis, its impact nevertheless tends to persist throughout the life span.

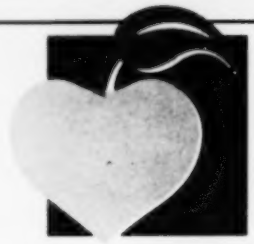
The Invisible Disability addresses learning disabilities in the context of the link between health and education, describing learning disabilities, estimating their prevalence, and noting some of the associated medical problems. This paper stresses the importance of fostering and supporting appropriate parental understanding of this complex but often invisible disability, and highlights that it is an interdisciplinary responsibility for all education and health professionals. Both sectors should be familiar with types of testing and interdisciplinary team assessments needed for diagnosis and treatment.

A set of appendices defines medical terminology.

Contents

INTRODUCTION 1
DEFINING LEARNING DISABILITIES 2
What is LD? 2
Inclusions 3
Exclusions 4
Subtypes 4
ROLE OF THE HEALTH CARE COMMUNITY 7
Assessment and Diagnosis 7
Pre-Referral Process 7
Assessment Process 8
Developmental History 8
Physical Examination 11
Psychoeducational Testing 12
The Importance of Diagnosis 13
Medication 14
The Need to Collaborate with Education 15
"BILLY'S LEARNING DISABILITIES"— A Case Example 16
ROLE OF THE EDUCATION COMMUNITY 20
Early Intervention 20
Identifying the LD Student in the Classroom 21
School-Based Interventions 22
Inclusion 25
Retention and Motivation 26
Medication 28
The Gifted Student with Learning Disabilities 29
Secondary and Post Secondary Education 29
The Need to Collaborate with Health 31
ROLE OF PARENTS 33
The Primary Role of Understanding in Treatment 33
Parents and the Process 33
The Emotional Impact of Learning Disabilities 34
CONCLUSION 35
SUMMARY RECOMMENDATIONS 37
Appendix 1: LD Myths and Misconceptions 38
Appendix 2: Select Causes of School Failure 40
Glossary 42
References 44
LDA Overview 45
NHEC Membership 46
Endnotes 48
National Health & Education Consortium 50
Publications List and Order Form 51

Introduction



Learning disabilities (LD) are the most common developmental disability in children and adults, with incidence rates conservatively placed at between 5 and 15% of the population. In fact, of the approximately five million children now receiving special education and related services in the U.S., slightly more than half (51 percent) have specific learning disabilities.[1] The term "learning disabilities" describes a group of chronic neurological deficits that affect the ability to master new learning commensurate with a person's intelligence. Although LD can benefit from early and accurate diagnosis, its impact nevertheless tends to persist throughout the life span.

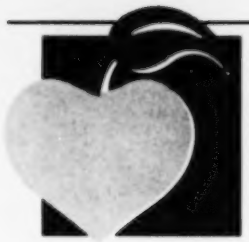
A century ago there were no recognized "learning disabilities" because universal literacy and formal school education were not prerequisites to successful functioning in society. Children who might have had difficulties with learning simply did not need to continue going to school. The complexities of modern civilization no longer allow that option.

This report has been prepared to provide the health community with a broad understanding of how learning disabilities are defined and "treated." Unusually for a biological (or "organic") disability, learning disabilities have a *medical* diagnosis but an *educational* "treatment." The publication also aims to acquaint educators and parents with the role health professionals — pediatricians and nurses in particular — can play in identifying children with LD and helping them receive the assessment and assistance they need. Every effort has been made to clarify professional jargon and to emphasize the critical role that cross-disciplinary collaboration plays in the appropriate diagnosis of learning disabilities and formulation of individualized treatment plans for children with LD.

But why focus in particular on the role of health practitioners? Isn't LD primarily a school-related problem of concern mostly to special education teachers? Actually, health professionals are of great importance for two reasons: (1) they play a crucial role in helping to diagnose LD, and (2) many health care providers find themselves seeing children for problems that are really secondary to scholastic concerns. It has been noted that, "estimates suggest that 5 percent of all office visits in a pediatrician's practice relate to school problems, and up to 50 percent of children evaluated in mental health clinics have learning disabilities."[2] These facts argue for a greater familiarity with learning disabilities among all health professionals.

Of course, learning disabilities should be of concern to all child-serving professionals because of the dramatic impact it can have on children and the extent to which it is an "invisible" disability. Children with learning disabilities are, by definition, of at least average intelligence and often do not otherwise appear to have a disability.[3] Without a physically apparent disability, many LD children are in danger of being overlooked and untreated or, worse, believed simply to be "lazy" or unmotivated at school.

This publication addresses three broad areas of concern to both health practitioners and educators: (1) the definition of learning disabilities, (2) the role of the health care community, and (3) the role of the education community. Because of their central position in a child's life, a brief word is also given regarding the role of parents.



Defining Learning Disabilities

What is LD?

Getting an education is a cornerstone of any individual's life. Although students are grouped by age level from their earliest years, we know that many children in the same grade are really at slightly different developmental stages. It is each day better understood that every child learns differently — and that each child learns differently in different settings, depending often on teaching style and subject matter. For some children, however, the learning process is complicated by more than individual differences or the vagaries of the classroom setting. Many of these children are challenged by one or more of a set of developmental disabilities called "learning disabilities" — the most common developmental disabilities known today.

This is not to say that all children experiencing serious learning problems have learning disabilities as they are defined by educators and health professionals. On the contrary, the term "learning disabilities" refers to a clearly defined set of causes and effects. Specifically, the child with learning disabilities exhibits average or above average intellectual abilities; however, on either psychological or educational testing an unevenness is noted in performance — certain abilities or skills test out much lower than others that test out at or above age expectancy.

This discrepancy between general cognitive ability and specific academic performance is the hallmark of all attempts to define learning disabilities and is a requirement for qualification for special education services. The process by which a discrepancy is defined under law, however, varies from state to state, and each state's department of education defines the criteria for testing and diagnosis.[4] Despite such variation, it remains a common practice that a quantitative discrepancy between ability (as measured by an IQ test) and achievement (as measured by an educational assessment of what the child has learned) must be demonstrated if a child is to be diagnosed as learning disabled. Moreover, this discrepancy must not be primarily caused by any of a commonly accepted set of "exclusions" (see Exclusions, below). It must be noted, however, that federal law (IDEA Reg. 300-532, 533) does provide professionals the option of making a clinical judgement, using criteria other than a numerical discrepancy, as they decide on a child's eligibility for special education services.[5]

Learning disabilities are organic deficits by nature, or, to be more specific, chronic neurological disorders. Learning disabilities occur when the brain doesn't perform correctly all that it is supposed to do with regard to learning. Many definitions of LD attempt to list the various neuropsychological processes that are assumed to be damaged or deficient in the learning disabled child. The important point to remember is that learning disabilities are not behavioral disorders in the sense of emotional problems or problems with motivation — although they may lead to these. One way to emphasize this fact is to refer to learning disabilities as "Neurologically-Based Specific Learning Disabilities (NBSLD)" or "Specific Learning Disabilities" (SLD) for short. In fact, there may not actually be any kind of real learning disabilities

other than neurological ones, but this terminology will effectively prevent other explanations (like motivation) from being gratuitously assumed. Again, learning disabilities are "brain" disorders and not "mental" or emotional disorders.

As chronic neurological disabilities, learning disabilities occupy a place on a broader continuum of developmental disabilities. Learning disabilities are not a single disorder but rather a family of conditions each of which bears greater or less resemblance to the others. Developmental disorders such as mental retardation, cerebral palsy, autism, language disorders, and attentional deficits all exhibit a common grouping of signs, symptoms and associated problems. In other words, they all share some clinical features. Identification of these specific etiologies[6] has, therefore, very serious implications for the child's learning potential and for his/her parents and care givers.

Many older studies of learning disabilities have shown a male to female predominance for LD of between three and five to one, so that most children identified with learning disabilities were boys. More recent data suggests that this may reflect a significant under-identification of girls. It seems that girls who are struggling with academics are more likely to work harder at compensating and less likely to act out behaviorally and thus bring attention to themselves as having LD.

"Learning disabilities are not a single disorder but rather a family of conditions each of which bears greater or less resemblance to the others."

■

Inclusions

One of the ways of clarifying what is meant by the term learning disabilities is to specifically list the characteristics that will qualify a child for that diagnosis. All children who meet the following criteria are included in the definition of LD: (1) who have average to above average intellectual abilities, yet (2) who are failing, struggling with, or experiencing significant difficulties in learning one subject or a number of subjects despite exposure to a "normal" teaching environment, and (3) whose learning problems are not secondary to one or more of the exclusions discussed below.

The fact that learning disabilities are organic in nature in no way minimizes the consideration that must be given to environmental, social and familial variables. Many parents and teachers misconstrue learning disabilities as deliberate motivational and/or behavioral problems. It is a simplistic myth to explain away the learning problems that children with learning disabilities experience by the aphorism, "He could do better if he tried." Reliance on this philosophy represents professional child abuse when voiced by professionals who should know better. It is a truism that persons with disabilities, just like all people, could do better if they tried harder. Learning disabilities represent a shorting out of the circuit between increased effort and an improved learning outcome.

Exclusions

The definition of learning disabilities can be even further clarified by listing specific conditions that might otherwise explain a child's learning difficulties. Such "exclusions" — as they are called — are frequently a part of different definitions of learning disabilities, and many state departments of education require that their possible contribution to a child's problem be specifically addressed as a routine part of the diagnostic process.

If any of the following exclusions are considered to be the *primary* cause of the demonstrated discrepancy between a child's ability and his or her achievement, then the child is not considered to have learning disabilities. It must be remembered, however, that many children may have one or more exclusions together with learning disabilities. Indeed, the presence of some exclusions may actually represent an increased risk for a child's having associated learning disabilities.

- Correctable and non-correctable *visual impairments* and *hearing impairments* may be severe enough to impede learning.
- *Mental retardation* as an underlying cause for school failure and other difficulties with learning is often considered to exclude the presence of learning disabilities. Children with mental retardation are not, however, excluded from having learning disabilities superimposed on their general cognitive delay.
- *Environmental, cultural* or *economic disadvantage* should not be considered an adequate explanation for school failure until a very careful assessment is carried out to rule out other more specific etiologies.

Finally, it must be recognized that the diagnosis of learning disabilities and their impact on learning are almost always relative to the learning environment in which the child is placed. This environment includes both the specific school the child attends as well as the larger surrounding society and its expectations.

"It is a simplistic myth to explain away the learning problems that children with learning disabilities experience by the aphorism, "He could do better if he tried." Reliance on this philosophy represents professional child abuse when voiced by professionals who should know better."

■

Subtypes

Because the term learning disabilities does not refer to a single disorder, but rather to a family of conditions, a number of different systems have been designed to sub-categorize learning disabilities. None has achieved universal acceptance because any classification scheme will successfully categorize most children with learning disabilities while leaving a small but significant percentage unclassified or unexplained. The problem is that each classification system tends to leave out a different small percentage of children.

The most common LD classification scheme involves denoting the specific subject area(s) in which the child is experiencing difficulty. For example, a child who has trouble with different aspects of language, especially reading, will be characterized as having *dyslexia*. A child who has problems with any of the aspects of mathematics will have *dyscalculia*. Problems with

motor planning are designated *dyspraxia;* when this dyspraxia affects handwriting it will be called *dysgraphia.* Poor spelling may be called *dysorthographia,* while *dysnomia* refers to difficulty with recalling the names of things. *Dyssemia* is a more recent term used to denote problems with reading social cues. Classification of deficit areas is supported by federal law, through which learning disabilities may be categorized under the following:

- oral expression
- listening comprehension
- written expression
- basic reading skill
- reading comprehension
- mathematics calculations
- mathematics reasoning

The Achilles' heel for most of these neat classifications has been the fact that most children with learning disabilities have combined deficits; sometimes the child has trouble in taking information along one channel but then has trouble putting the information out along a different channel. The classification scheme currently being used by most researchers in the field of learning disabilities is the neuroanatomical one proposed by Bruce Pennington (Table 1), which links general function problems to locations in the brain and then to specific learning disabilities. This classification system allows for the marked overlap of subtypes that show up in clinical practice.

With regard to specific subtypes of LD, past statistics suggest that left-brain problems with reading difficulties (e.g., dyslexia) are more than twice as common as right-brain deficits with mathematical difficulties (e.g., dyscalculia). Again, this may reflect a bias in identification; it is possible that mathematical disabilities are as common as reading disabilities but that they simply have not received the same emphasis. Reading is critical to continuing academic success while mathematics requirements can often be passed with minimal competence levels, especially in the early years of basic skill acquisition (the operations of addition, subtraction, multiplication and division). Today, the prevalence of mathematical disabilities and sex ratio differences continue to be the subject of much research.

"Most children with learning disabilities have combined deficits; sometimes the child has trouble in taking information along one channel but then has trouble putting the information out along a different channel."

Table 1

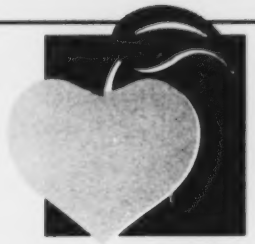
Neuropsychological Classification of Learning Disabilities

(Modified after Pennington, 1991)

Modular Function	Localization	Learning Disorder
Phonological Processing	Left Perisylvian	Left brain deficits Dyslexia Sequential processing deficits Developmental disorder of language
Executive Functions	Prefrontal	Attention deficit disorder
Spatial Cognition	Posterior Right Hemisphere	Right brain deficits Dyscalculia Dysgraphia Developmental disorder of written language
Social Cognition	Limbic Orbital Right Hemisphere	Autistic spectrum disorder/ Asperger Syndrome
Long-term Memory	Hippocampus Amygdala	Amnesia

It should be noted that the placement of attentional deficits as a subclass of learning disabilities is still being debated; the classification of autism as a deficit of social learning rather than as an extremely severe language disorder is also not universally accepted. Interestingly, Pennington's fifth category of learning disorders (amnesia) is quite rare and would probably be more familiar in a medical or rehabilitation setting under the category of Traumatic Brain Injury (TBI). For more information on Pennington's classification scheme read Pennington, Bruce F. *Diagnosing Learning Disorders: A Neuropsychological Framework.* New York: Guilford Press, 1991.

Role of the Health Care Community



As has been noted, many parents bring their children to see health professionals for school-related problems. With this in mind, health care providers should be aware of the warning signs for learning disabilities and have a familiarity with the process of assessing and diagnosing LD. A number of behaviors and physical/developmental indications exist that should cause care providers to suspect the possibility of learning disabilities. Chronic, somatic aches and pains associated with exams or that persist only during the school week or school year, for example, might lead a nurse or pediatrician to refer a child for LD assessment. Likewise, a family history of learning disabilities or a developmental history that reveals a pattern of physical or cognitive traits associated with LD should prompt an inquiry into the need for an assessment.

Below is discussed in more detail the learning disabilities assessment and diagnosis process. A word about the importance of diagnosing LD and the role of medications is also included. Lastly, a sample case study is given in order to help provide a "real world" picture of the steps taken to identify and assist a child with learning disabilities.

Assessment and Diagnosis

Children who are having trouble learning in the classroom and are suspected of having learning disabilities (or possibly some other developmental disability) should be evaluated by a comprehensive interdisciplinary team assessment. Under the Individuals with Disabilities Act (IDEA),[7] such multidisciplinary assessments are required when a child is referred for having suspected learning disabilities.

Pre-Referral Process

It is important to know, however, that many schools use what is known as a "pre-referral process" — which is not mandated by law — to screen students suspected of having a learning disability. This process usually consists of the regular classroom teacher consulting with the special education teacher to develop intervention strategies such as a change in seating or reduced assignments to see if that will solve the student's problem. For some students, the pre-referral process can go on for months with the student languishing in the class. If the accommodation seems to alleviate the problem the student is often not referred to special education for LD assessment. Many of these children are pre-referred year after year but never get referred for a formal assessment.

Advocates for children suspected of having a learning disability need not accept the pre-referral process. It is possible — and preferable — to initiate a formal, interdisciplinary team assessment of the child. To ensure that an assessment will be carried out in a timely manner, it should also be noted that a letter of referral for such an assessment can be written by anyone interested and knowledgeable about the child, including the parent. Families do not have to wait for the school to initiate action.

Assessment Process

The only requirement for the composition of a formal diagnostic interdisciplinary team is that it represent more than one profession, although different states may specify professional membership in greater detail. The paramount ingredient of the assessment is not who does the testing but *what* is to be tested. Many of the individual components of a comprehensive LD test battery might be assessed by different professionals. States provide general guidelines on testing and formulate a working procedure manual on how to meet those guidelines. Local Education Agencies (LEAs) follow the guidelines and determine how to best utilize their local school resources to meet the needs of the children.

An assessment almost always includes vision and hearing screenings and a health history. Ideally a physical examination by a nurse (school nurse or pediatric nurse practitioner) should be conducted. A child psychologist or school psychological examiner will administer behavioral profiles and formal psychometric instruments (IQ tests). Educational testing will be performed by special education teachers, educational diagnosticians or school psychological examiners. A detailed speech and language screening may also be conducted by a speech-language pathologist, although speech and language will have been informally screened during the other components of the evaluation. Social work evaluation of the family history and current family functioning should be a routine component of the team assessment process. The physician or other health professional who performs the developmental history and the physical examination should be familiar with the medical conditions that might be associated with learning disabilities and keep these in mind (see Table 2 for a list of such conditions).

Below are described crucial aspects of an interdisciplinary LD team assessment process: establishing a developmental history, conducting or obtaining the results of a physical examination, and performing psychoeducational testing. Each of these three aspects is vital to arriving at an accurate diagnosis.

"The only requirement for the composition of a formal diagnostic interdisciplinary team is that it represent more than one profession..."

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Developmental History

Establishing and understanding the developmental history of a child is important to arriving at an accurate diagnosis of learning disabilities. Such an evaluation is provided by a health professional, usually a medical doctor. While addressing a child's developmental history, the physician should be sensitive to a history of early risk factors for learning disabilities; but it should be understood that many of the conditions commonly believed to increase the risk of LD by no means dictate its presence. For example, although perinatal risk factors such as low birth weight, cord around the neck, and hyperbilirubinemia (jaundice) may be associated with an increased incidence of learning disabilities in some cases, most children with these risk factors do not exhibit learning disabilities, and most children with learning disabilities do not have a history of such risk factors. Since learn-

Table 2

Medical Conditions Associated With Learning Disabilities

- Attention Deficit Disorder
- Cerebral Palsy
- Central Nervous System Infection (meningitis, encephalitis)
- Developmental Coordination Disorder
- Developmental Delay
- Developmental Language Disorder
- Dysmorphic Child
- Epilepsy (Seizure Disorder, Convulsive Disorder)
- Failure To Thrive
- Lead Poisoning (Plumbism)
- Leukemia Survivor (after high dose CNS radiation)
- Maternal Substance Abuse During Pregnancy (for example, Fetal Alcohol Syndrome)
- Neurofibromatosis
- Neurosurgical Disorders (Traumatic Brain Injury, Hydrocephalus, Brain Tumor)
- Phonological Disorder (Developmental Articulation Disorder)
- Prematurity
- Psychiatric Disorder (such as Depression)
- Recurrent/Chronic Otitis Media
- Sensory Loss (Blindness, Visual Impairment, Deafness, Hearing Impairment)
- Specific Genetic Syndrome (such as Fragile X Syndrome, Turner Syndrome, Prader-Willi Syndrome)
- Tourette Syndrome

"...learning disabilities are increasingly considered to be of genetic origin..."

■

ing disabilities are increasingly considered to be of genetic origin, a family history of learning disabilities would be considered a much more serious risk factor than, say, low birthweight.

Although early medical risk factors bear only a weak relationship to actual incidence of LD, some still appear to be more closely linked than others. The most common medical factors associated with the occurrence of learning disabilities are *prematurity* and other *perinatal difficulties.* The increased survival of smaller and smaller prematurely born infants apparently contributes to the incidence of LD; however, the overall rate of learning disabilities probably remains unaffected by such neonatal events because a similar number of children who would have suffered brain damage (leading to learning and other problems) are prevented from injury by the very same neonatal intensive care techniques; thus, the rates may offset each other. Similarly, the diagnostic value of such perinatal assessment tools as APGAR

scoring (which assesses an infant's status across a number of categories within the first few minutes after birth — see Glossary for more detail) is questionable for learning disabilities. The predictive value of low APGAR scores is much exaggerated; mildly low and even severely low APGAR scores do not account for many cases of learning disabilities.

While a formal definition of learning disabilities requires a discrepancy revealed in quantitative test scores, an informal suspicion of possible learning disabilities requires only inconsistency in early developmental milestones. A parent may notice that their young child is much better in certain skill areas than others. *Speech* and *language delay,* for example, is probably the most accurate single early warning sign predictive of later learning disabilities. Fine and gross *motor delays* and *physical clumsiness* are probably the second most common group of characteristics indicative of future learning disabilities. Again the predictive strength of these associations is far from perfect: many children with learning disabilities will not have demonstrated any such delays, while many children with such delays will not go on to show any learning disabilities. Below are addressed a number of potential warning signs for LD that may show up in a physician's developmental assessment of a child.

"...an informal suspicion of possible learning disabilities requires only inconsistency in early developmental milestones."

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- **Ear Problems.** A history of chronic and recurrent ear problems (otitis media) is often blamed for language delays and the later development of language-based learning disabilities. However, the evidence to support this linkage remains unconvincing. Such factors as an early childhood history of pica (eating non-food items), chronic low level lead poisoning (plumbism), or chelation therapy for lead poisoning have stronger associations with later learning disabilities than ear problems.

- **Letter Reversal** in children's writing is often misinterpreted as diagnostic for learning disabilities. In fact, letter reversal is a physiological stage in children learning to write and is quite normal (with a decreasing frequency) up to eight years of age. Normal children reverse letters frequently in first grade, much less so in second grade, and rarely in third grade. Reversals that persist unabated into third grade may, however, suggest the presence of learning disabilities.

- **Left Handedness** (sinistrality) has sometimes been considered a marker for learning disabilities, but there is simply no evidence to support this association. Learning disabilities are as common among right-handed children as among left-handed children. Since, however, left-handed children generally present more of a problem to right-handed teachers with regard to teaching how to print and write, it is quite understandable that left-handed children with mild learning disabilities are more likely to be identified earlier on than right-handed children with the same mild disabilities. It should be noted that left-right directional confusion — rather than left- or right-handedness — does in fact remain an associated finding among several of the learning disabilities subtypes.

- **School History.** The school history of children with learning disabilities often displays a characteristic pattern of strengths and weaknesses: most children with learning disabilities do not perform poorly in all subject areas, but rather tend to be consistently worse in certain globally related areas. Thus the child with an early history of language delay may have trouble with reading and all reading-based subjects. Another child with a right brain deficit pattern may do well in reading and oral quizzes but have trouble with mathematics and written tests. It is impossible to delineate all the different specific patterns that may occur, but there is usually a profile of consistent success and failure depending on the subject, the mode of teaching, or the method of examination and grading.

- **Behavioral/Emotional Disorders.** All behavior and emotional disorders that show up in school-age children should be considered as potentially secondary to undiagnosed learning disabilities. Psychiatric diagnoses that might indicate the presence of undiagnosed LD include oppositional defiant disorder (the negativistic child who refuses to obey), conduct disorder (the juvenile who gets involved in serious conduct infractions) and dysthymia (chronic unhappiness) or depression. There are many other contributing factors to the evolution of these emotional conditions in children, but it is too-often forgotten that intervention for underlying learning disabilities can sometimes be more effective, more rapid and less expensive than long-term psychotherapy. Removing or responding to a major stress that is damaging a child's self-esteem can dramatically improve an otherwise extremely complex picture. Children with undiagnosed learning disabilities who have experienced chronic under-achievement and school failure frequently have low self-esteem and are more subject to episodes of depression. For some children, correct diagnosis and treatment of their learning disabilities can lessen or remove the need for intensive psychotherapy and antidepressant medications.

"Children with undiagnosed learning disabilities who have experienced chronic under-achievement and school failure frequently have low self esteem and are more subject to episodes of depression."

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Physical Examination

In addition to reviewing a child's developmental history, medical personnel should be aware of the potential for learning disabilities while performing physical examinations. The evaluation of children for possible learning disabilities should include careful assessments of both vision and hearing even if previously normal screening results have been obtained. Certain subtle but significant deficits in vision and hearing may be missed by more routine screening methods. In addition, children's vision and hearing are both susceptible to fairly rapid deterioration in the elementary grades when young children are still unable to understand and verbalize that such a loss in capacity is happening to them.

As a part of a physical examination, a careful screening should be undertaken for the presence of *minor dysmorphic features* (mild physical malformations, such as small head size [microcephaly], that correlate with the existence of a genetic syndrome — see Glossary for more detail). Physicians

should be aware that a high dysmorphology score for an infant or preschool child is considered a risk marker for learning deficits and other disorders. Such scores can help health professionals locate the onset of any learning disability that is present to within the first trimester of life.

In addition to administering vision and hearing screenings and assessment of minor dysmorphic features when evaluating a child for potential LD, a standard neurological examination should be conducted and extended to include an assessment of *soft neurological signs* (neurological findings that can only be interpreted in tandem with the patient's age; that is to say minor neurological dysfunctions that would be "normal" at an earlier age but which may be "abnormal" at the present state of development — see Glossary for more detail). These soft signs represent immaturities in the motor system that may correspond to the various central nervous system cognitive irregularities that are reflected in learning disabilities.

"IQ testing results must be correlated with academic performance to indicate the presence of learning disabilities."

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Psychoeducational Testing

Intelligence testing (IQ) is a minimum testing requirement for diagnosis of LD and should accompany developmental history and physical exams. But, IQ — in the sense popularly understood — does not correlate directly with LD. A child with a "high IQ" may be learning disabled and a child with a lower IQ may not. In any case, IQ testing results must be correlated with academic performance to indicate the presence of learning disabilities.

That said, however, the proper battery of specific IQ tests may be quite accurate in diagnosing learning disabilities. The most commonly utilized instrument for such testing is the Wechsler Intelligence Scale for Children, Third Edition (WISC-III); some psychologists will use the Stanford Binet, Fourth Edition (SB-FE). A child with a very large discrepancy between the Verbal IQ and the Performance IQ on the Wechsler scales (say 25 points, when the standard deviation is 15 points) most probably has learning disabilities. Children without a significant verbal-performance discrepancy can also have a learning disability, however. More formal neuropsychological batteries are used much less frequently than either of these two instruments. Naturally, conclusions from such tests still need to be supported by educational achievement testing that documents a pattern of learning deficits consistent with these scores.

In addition to a test such as the Wechsler scale, an emotional assessment of children with learning disabilities may be indicated by the presence of symptoms of dysthymia (chronic unhappiness) and depression or when severe family problems are present. The severity of a child's emotional symptoms needs to be evaluated as to their impact on the child's learning, whether they are primary or secondary to the learning problem. In addition, the likelihood that they would either disappear when the learning disabilities are treated or could interfere with any such treatment should be considered. Most children identified early enough will have emotional symptoms associated with LD relieved by educational interventions.

As stated before, IQ test results need to be correlated with objective measures of academic performance. Specific process and language testing may further clarify the picture established by IQ and psychological tests. The most commonly used *educational test* is the Woodcock Johnson Psycho-Educational Battery—Revised (WJ-R). This instrument allows analyses of different academic skill areas, as well as certain language and processing areas. Other instruments that may be used for educational testing include the Wide Range Achievement Test—Revised (WRAT-R) and the Peabody Individual Achievement Test—Revised (PIAT-R).

Testing has an important role to play in diagnosis but is not, certainly, the only component of an effort to assess and plan for treatment of learning disabilities. Because of the wide range of specific educational interventions appropriate to individual children with learning disabilities, it is not possible to go directly from a test score profile to an intervention strategy — some degree of trial and error is required. That is to say, standardized testing for LD with a battery of psychological and educational instruments is not a certain predictor of the success of any specific school intervention. This does not mean that test results are not useful — they are very helpful in diagnosing the presence of LD and suggesting directions for intervention — but, rather, that they, like all test results, are a sampling of behavior representing an underlying learning process instead of being a cure-all or flow chart for treatment.

The Importance of Diagnosis

Accurate diagnosis is critical to successfully assisting the learning disabled student by helping to initiate appropriate classroom modifications and to indicate the direction for determining effective intervention techniques. Furthermore, lack of an accurate and comprehensive diagnosis frequently contributes to the development of an adversarial relationship between the parents of children with learning disabilities and the school. A child's poor and struggling performance may lead parents to complain to the classroom teacher that he or she is not teaching their child well enough; likewise, the classroom teacher may express concern to both parents and administrators that the child is not trying hard enough to succeed. Tragically, the latter is often interpreted as a clear indication of some fault in parenting. In such a situation, the student becomes trapped in a cycle of poor achievement and buffeted by a deteriorating relationship between the adults most important in his or her young life.

A diagnosis of learning disabilities can help defuse this antagonism for the LD student and begin a cooperative effort toward addressing the child's academic difficulties, but it is important that the diagnosis is not limited simply to a description of the child's deficit areas. Parents need to hear not only that their child has an identifiable weakness in, for example, reading;

"Accurate diagnosis is critical to successfully assisting the learning disabled student."

they urgently need to be told that this deficit is neurologically based and is in no way their fault or the fault of their child. In the absence of such clarification of the real causes of these weaknesses, parents may view it as their role to get their child out of special education services, and out of being labeled a poor student, as soon as possible rather than to work to negotiate the optimal level of needed support services. Similarly, the child him- or herself needs to know that he or she is understood and that the adults in his or her life do not blame the child for the problems, but rather are working together to help. The child should not hear solely about his or her "deficits," either; the child needs to know that there are compensating strengths as well.

Medication

"Simply put, there is no medication to treat learning disabilities."

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Simply put, there is no medication to treat learning disabilities. Several years ago there were some initially promising results using a drug (Piracetam) to treat dyslexia, but the effects did not hold up under further controlled study. Therefore, the category of drugs referred to as "Nootropics," drugs which selectively stimulate and enhance higher cortical functions (i.e., learning), is currently empty of any medications of proven efficacy. This does not mean that some time in the near or distant future drugs may not be developed that will selectively enhance learning and memory and, as a result, be of some use in the treatment of learning disabilities. There is, for example, much research on Alzheimer Disease that may unlock the neurochemical basis for memory and may then apply to the selective treatment of certain learning disabilities.

Although there are no drugs effective in the direct treatment of learning disabilities, certain medications can be quite helpful in the management of Attention Deficit Disorder (a developmental disorder concerning a child's attention span — see Glossary for more detail), which can be associated with LD. Improving the attention span of children with learning disabilities will often have a positive, if indirect, impact on a child's classroom performance. Psychostimulant medication can cause immediate and dramatic improvement in the drawing skills and handwriting of children with both attentional deficits and written language disorders. Antidepressants to treat depressive symptoms may be used on a short term basis when such symptoms are the result of long-term inappropriate class placement and unrealistic academic expectations. If correcting the school placement and classroom expectations does not lead to a fairly rapid resolution of the depressive symptoms, then such antidepressant medication should probably not be continued without ongoing psychotherapy.

The organic nature of learning disabilities — that is, its basis in neurological malfunction — argues for the promise of medical treatment eventually. However, parents, health care professionals and educators anxious to help children with learning disabilities *must* remember that while there are many

other unproven treatments that claim to be medically effective, these "treatments" lack any proof or documentation of their efficacy. Such "cures" include the following: the use of special diets, (mega)vitamin treatments, metallic trace element and amino acid supplements, anti-motion sickness drugs, patterning, chiropractic therapy, yeast (candidiasis) therapy, use of special glasses, eye exercises, EEG biofeedback, and auditory integration training.

The Need to Collaborate with Education

It is vital that health providers work in collaboration with educators to identify children who might have learning disabilities and to qualify those children for necessary and appropriate services. As noted before, a large and perhaps growing number of visits to pediatricians relate directly to school issues. In such cases, medical practitioners can help link parents to schools to promote LD assessment. Likewise, health care providers can play an invaluable role in performing comprehensive physical exams and taking developmental histories as a part of the LD diagnostic process.

Physicians and other health care providers should also recognize the health implications of untreated learning disabilities. The impact of LD on children who are not properly assessed or given necessary services can be acute. Otherwise capable children who routinely experience school frustration or failure, who do not receive appropriate and necessary attention, and/or who are blamed (or blame themselves) for their disability can end up with severe mental health problems or short-circuit their education by dropping out of school. And we know that school failure can lead to high risk health behaviors such as substance abuse in youth — another reason why health professionals should be intimately involved in identifying learning disabilities.

The health care community should recognize its important role in identifying the "symptoms" of LD in young patients, referring students to school personnel for assessment, conducting certain aspects of the LD diagnostic process, providing advice to parents or writing a letter of recommendation for assessment, and serving on the interdisciplinary team set up to design and administer a student's Individual Education Plan. Health professionals should acquaint themselves with local special educators, parent support groups and school administrators. Similarly, practitioners can request that experts in LD recommend appropriate readings or otherwise help prepare physicians (and other practitioners) to recognize the warning signs of possible LD in their patients.

The interdisciplinary nature of LD assessment and "treatment" and the potential LD holds for affecting the "whole child" all underscore the need for collaboration between health professionals and educators. The second section of this paper, on the role of the education community, may help health professionals better understand what educators do to help "treat" children struggling with LD in the classroom.

"It is vital that health providers work in collaboration with educators to identify children who might have learning disabilities and to qualify those children for necessary and appropriate services."

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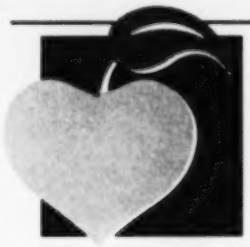

"Billy's Learning Disabilities" — A Case Example

The following representative but fictional case example may help health professionals and educators better understand how the diagnosis and "treatment" process for learning disabilities works in the real world.

Billy's Early School Experience

Before he started school, Billy seemed to be the smartest little boy on the block to his proud mother and father, who had absolutely no expectations that he would have trouble learning. Billy's kindergarten teacher noted what appeared to be some signs of immaturity, but nevertheless Billy seemed to have mastered enough to go on to first grade — and he was so enthusiastic about school.

In first grade, Billy struggled with phonics, but did well with arithmetic. He brought home unfinished papers to complete with his mother's assistance while the rest of the class had no homework. He was passed into second grade with some reservations by his teacher and — while he seemed as "smart" as any of the other children — he would spend significant time each night doing homework that took his classmates less than 15 minutes. In addition, he lost recess regularly due to incomplete class work. It became obvious to his parents and his teacher that Billy's attitude toward school was changing for the worse as his enjoyment of being with his friends and peers took a back seat to his frustration with poor academic performance. In spite of his increasing problems with reading- and writing-related exercises, Billy still did well enough in one or two subject to clearly demonstrate to the adults in his life that he was intelligent and could learn. Certainly, outside the schoolhouse doors he still behaved like a "normal" child; he associated well with the other children and was happy during the summer months when he was free from the pressures of schoolwork.

A Worsening Picture

By the third grade, Billy's grades were falling in spite of the fact that he regularly missed recess to complete assignments, performed several hours of stressful homework each night (which drove his mother to distraction), and had specialized tutoring in reading after school. Billy also began to develop stomach aches and headaches on test days, or during big projects at school. However, in light of his strong performance in non-reading assignments, Billy's parents and teachers were likely to chalk up the fundamental cause of his academic difficulties to a lack of motivation and a developing bad attitude towards assignments he didn't like.

As his stomach aches persisted, and because she worried that Billy might have a physical illness of some sort that contributed to his school difficulties, Billy's mother took him to their family physician for a medical check up. The doctor was impressed by the com-

bination of a negative physical examination and the notable history of chronic school problems. It was clear that the stomach aches and headaches were a response to school stress since they never occurred on weekends or during vacations.

Billy is Screened for LD

Upon reviewing Billy's developmental history, the doctor learned that Billy had experienced significant delays in meeting early language milestones. Indeed, Billy had almost been referred to a speech-language therapist at age 2½. In addition, he exhibited some attentional deficit symptoms — seeming not to hear people or perhaps even deliberately tuning others out. Billy's short attention span seemed primarily noticeable during verbal interactions and, although he was by no means hyperactive, he was described as easily distractable, impatient, fidgety and impulsive.

While she could not recall how long either had persisted, Billy's mother distinctly remembered that as a very young child he preferred communicating in short sentences or single words and would sometimes misinterpret even the simplest of verbal directions. He would have trouble finding the right words and would often talk around things or substitute words that were close but not quite on target. The pattern had not troubled Billy's mother or father, however, because Billy's father — and his sister, Billy's aunt — had done the same thing as children and both had obviously grown up to be articulate adults.

As a result of the information gleaned from Billy's developmental history, his doctor recommended that Billy's mother request a formal examination for learning disabilities. She wrote a letter to the school and was put in contact with the special education department, which arranged for Billy to take a battery of tests: the Raven Matrices, the SIT-R, the WISC-III, the PPVT-R, and the Woodcock Johnson and CELF-R exams, among others.

Billy scored at the ninetieth percentile on the Raven's Coloured Progressive Matrices (a non-verbal test of intelligence), and demonstrated an IQ of 105 on the Slosson Intelligence Test—Revised (SIT-R, a more heavily verbal screening measure of intelligence).

A child psychologist administered Billy a Wechsler Intelligence Scale for Children—III (known as the WISC-III). Billy tested out with a verbal IQ of 84, which is in the low normal range; a performance IQ of 111, which is in the high normal range; and a full scale IQ of 96, which is a normal IQ score. Once scores for verbal comprehension, perceptual organization and freedom from distractibility were generated, Billy showed a 23-27 point difference between his verbal and non-verbal abilities (a significant point difference). Billy scored well on his Peabody Picture Vocabulary Test—Revised (PPVT-R), where he was assessed for receptive vocabulary, and on his

"As a result of the information gleaned from Billy's developmental history, his doctor recommended that Billy's mother request a formal examination for learning disabilities."

Developmental Test of Visual-Motor Integration, a test of pencil and paper skills.

An educational diagnostician then administered Billy the Woodcock Johnson Psychoeducational Battery—Revised, on which he received a basic reading standard score of 80, which is normal, although his test of silent reading skills on a formal reading inventory was low. On the other hand, Billy did well on a diagnostic test of arithmetic skills. Finally, in addition to tests assessing written language, Billy took the Clinical Evaluation of Language Fundamentals—Revised (CELF-R), a test of language abilities, receiving an overall language standard score of 80* — with a receptive language score of 89 and an expressive language score of 73 — all in the low normal range, except the expressive language score.

Billy's IEP

Based on these tests, an interdisciplinary team was convened at the school to discuss Billy's case; the team invited Billy's parents and his teacher to attend the meeting as well. It was the conclusion of the team that Billy met the criteria for the following diagnosis: a developmental disorder of language with expressive language more involved than receptive language; in addition, a neurologically-based specific learning disability impacting on reading and written language, and an attention deficit disorder without hyperactivity. The team described Billy as having a learning pattern of simultaneous processing strengths and auditory sequential weaknesses, citing the family history and physical findings as evidence that the disabilities were genetically caused.

The team created an individual educational plan (IEP) for Billy that involved the following components:

- classroom and curriculum modifications designed to address the learning, language and attentional problems, with such modifications as reduced written assignments,
- resource learning disabilities services, including part-time special education class placement to work specifically on his reading and written language skills,
- speech-language pathology services to address his language disability, and
- enrollment of his parents in a support group for parents of children with learning disabilities.

Although it had been suggested by some members of the team that Billy undergo a trial run of medications for his attention deficit problems, the general consensus was that such an approach should be put off pending the results of the new school-based interventions.

"Although Billy's parents were greatly relieved to learn that their son's scholastic difficulties were grounded in a set of biological disabilities rather than in some kind of attitude problem, they were simultaneously concerned for his future."

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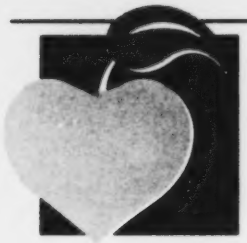
Billy's Parents Have Concerns

Although Billy's parents were greatly relieved to learn that their son's scholastic difficulties were grounded in a set of biological disabilities rather than in some kind of attitude problem, they were simultaneously concerned for his future. They wondered how Billy would take being "labeled" as a child with disabilities and how his classmates would react to him. They also worried that his classification as an LD student might keep him from succeeding later in school. They asked the team whether or not removing Billy from his regular classroom for periods of specialized instruction would stigmatize him and make him the butt of jokes from other children. Billy's teacher, who had a few other children with special needs in her class, explained that a number of students in Billy's class left for part of the day for a wide variety of reasons and that no one was ridiculed for such transitions. She stressed that the school had a policy for ensuring that the provision of special services was smoothly integrated into the regular class day.

Billy Makes Progress

Billy was nervous about the changes in his school schedule and asked his mom and dad why he was going to have to take different classes than his friends. Although they explained that the changes were minor and designed to help him do better and to build on his many talents by helping him learn in areas where he needed assistance, Billy was still uneasy; in fact, during the first few days of his new schedule, Billy's aches and pains actually increased. But, within a couple of weeks of going to school with his program accommodations in place, all of Billy's symptomatic complaints disappeared and his mood improved markedly — which is a very good indicator of appropriate class placement. Not only was Billy happier, his parents were very relieved to see that he was again liking school and making steady progress — and both were delighted to be able to forego the squabble-filled evenings of frustrating homework.



Role of the Education Community

While the diagnosis of LD requires multi-disciplinary assessment, the "treatment" of learning disabilities occurs in the educational setting. This status argues strongly for regular education teachers and school administrators to have a working understanding of LD and a sense of how they can partner with pediatricians, nurses and other health care providers — in addition to learning disability specialists — to identify children who may have disabilities and to diagnose and treat them appropriately.

There are a few broad areas of concern to educators dealing with learning disabled students. The first is the issue of early identification of children with LD, a topic that can cause confusion and even guilt for parents and teachers alike. The second is the need for school-based interventions as set up by an individual education plan designed to accommodate the student with learning disabilities. This includes classroom modifications and an individualized special intervention program. Attendant to school-based interventions are the issues of inclusion and retention and the results for the child and the classroom. Lastly, all teachers should be aware of the impact learning disabilities can have on a student's long-term educational success in post-secondary education and beyond.

Early Intervention

Early LD identification and intervention are issues that can readily cause parental guilt. Parents can easily feel that they did not catch their child's learning disability early enough and that they are to blame for any adverse results. In fact, "early" diagnosis should be considered to mean the diagnosis of learning disabilities before they significantly impact on school performance — and before any school failure can have an impact on a child's self esteem. However, because children develop at different rates and because learning disabilities vary in type, severity and impact, "early" can mean in the preschool years, in kindergarten or first grade, in third or fourth grade, and possibly in secondary education, depending on the child. In other words, the meaning of "early" is necessarily individualized for each child; and, since the presence of an uneven cognitive profile alone is not sufficient to formally diagnose learning disabilities, the child must be exhibiting some difficulty in learning in one or more academic areas. Some children simply may not demonstrate any problems with school work until the later grades. Because not all learning disabilities can be diagnosed in the first several grades of formal schooling, parents of those children with learning disabilities who are identified after the first grade should not be made to feel guilty because the problem was not picked up earlier. In addition, both parents and teachers should recognize that early diagnosis and intervention are greatly to be desired but that they are not panaceas.

Identifying the LD Student in the Classroom

How can an understanding of the medical/neurological approach taken when diagnosing learning disabilities assist teachers as they try to make instructional decisions in classrooms? What is a teacher likely to see in a student that might make them suspect the presence of LD and prompt them to refer a child for such assessment?

These are not easy questions, but it is commonly agreed that teachers should have at least some understanding of the neurological basis of LD simply because it makes it that much easier to understand what is happening to their student and what to do about it. This report has stressed that a diagnosis of learning disabilities implies that the underlying cause of a student's academic problems is related to a neurological dysfunction — that is, the student has a cognitive dysfunction severe enough to create a barrier to the student's achieving up to potential in the classroom. One of the biggest shortcomings of current efforts in providing instructional services for students identified as LD is that most regular education teachers are unaware of the specific disabilities that are at the root of the student's academic problems. As a result, classroom teachers are sometimes being asked to work in the dark when it comes to "treating" a child with learning disabilities.

"...most regular education teachers are unaware of the specific disabilities that are at the root of the student's academic problems."

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For example, is the root of a child's scholastic difficulties due to a severe attention deficit disorder, a memory disability, or a visual processing disability — or is it due to a more global problem with language? (Of course, students will frequently have a combination of specific cognitive disabilities although one may stand out as the primary cause of difficulties with learning.) Without a good understanding of the student's basic cognitive deficits — *and strengths!* — the classroom teacher will not have the information necessary to make appropriate decisions about modifications to use with a particular student. If a teacher does not have good diagnostic information and input from the learning disabilities specialist, instructional decisions may focus on academic content without consideration of the use of compensatory methods, such as memory assistance techniques, attention focusing techniques or the development of metacognitive or learning skills.

Teachers might utilize any number of a variety of "warning signs" that a student has learning disabilities and should be referred for formal assessment. Take for example a child with a visual processing disability and/or writing disorder. An otherwise verbally communicative child may provide only one to three word answers in written assignments. Perhaps in written assignments the student begins with quite detailed sentences but rapidly moves to sentences devoid of detail. A student with a specific deficit in visual processing may have difficulty sorting out what they need to copy off the chalkboard; as a result he or she may take poor and incomplete notes to use or study with later, because when such a child moves visual attention back and forth from the chalkboard to paper, frequently it is easy for

him/her to lose track of where they are in the task. In all cases, it will take the child longer to do assignments (something that will even further compound a problem with taking notes as the child will tend to fall behind).

In general, teachers should keep the possibility of learning disabilities in mind if the two following school-based problems show up:

(1) a student is bright but is just not making the same academic gains as the other children; and

(2) the amount of time being spent helping one student is becoming frustrating and leading to the conclusion that "I cannot keep spending this amount of time with this one child; it's disrupting the entire class."

Experts repeatedly urge educators to keep in mind that if a student clearly *can* do much of the course work but appears to be unwilling or unable to do particular aspects of it that it is very likely that learning disabilities are present; it is correspondingly unlikely that a student is simply unmotivated in one area.

Teachers of students with specific learning disabilities must have an arsenal of various instructional procedures and techniques that can be clinically matched with each individual's unique pattern of learning strengths and deficits. Without a basic understanding of a learning disabled student's intrinsic neurological makeup and the impact of his or her specific cognitive abilities, a teacher is relegated to a trial and error process of arriving at the most effective instructional methods.

"At the completion of the assessment a conference will be held to formulate a school-based learning intervention for the child, known as an Individual Education Plan (IEP).

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School-Based Interventions

As has been mentioned, once a child is suspected of having learning disabilities, an interdisciplinary team assessment is performed under the aegis of the school's department of special education. The team may consist of health professionals, school counselors, special educators, administrators, teachers and others, although the only requirements for the composition of a formal diagnostic interdisciplinary team is that it represent more than one profession and include a person of the same sex and race as the student. At the completion of the assessment a conference will be held to formulate a school-based learning intervention for the child, known as an Individual Education Plan (IEP). A child's parents will be full participants in the conference. In addition, the classroom teacher, along with representatives from the assessment team and the school administration, will be in attendance.

The IEP process negotiates agreement about — and details in writing — the special services, curriculum modifications and other supports necessary to allow a child with learning disabilities to learn effectively in the school setting. Two critical points about this IEP process should be emphasized: (1) despite the fact that they are usually outnumbered, parents do not have to agree to any of the conclusions of the meeting, and (2) by federal law

parents are supposed to be clearly informed of their right to disagree with any and all of the conclusions of the IEP conference, of the alternatives available to them (such as appeal), and the steps necessary to do so.

If the interdisciplinary team assessment establishes the presence of learning disabilities and indicates that a child has special instructional needs and requires modifications to the usual instructional style in his or her local school, then accommodations to or variations in the method of teaching must be made in the child's principal classroom. Such variations need not be complicated, but may demand special training for a regular classroom teacher and require significant individualization of instruction and an increase in the time spent per pupil. The most effective regular classroom intervention for children with learning disabilities is placement in a classroom with a low pupil-to-teacher ratio. (Alternatively, a teaching assistant, second teacher or other resource professional might work with the child with learning disabilities in the regular classroom.) This has proven to be a very effective school-based intervention for students with LD. In fact, it has been suggested that if all classroom sizes were reduced to less than 15 students per room fewer learning disabilities would be diagnosed. Children with learning disabilities may receive special help in a number of physical settings in the school:

- in their regular classroom (with assistants and special services — "class within a class"),
- in a resource room that offers part-time learning disability services, or
- in a self-contained classroom that offers full-time learning disability services.

It should be noted that the specific names applied to these different classroom options vary considerably among school systems.

There are other accommodations that can be applied to different types of learning disabilities apart from modifying class size. These accommodations stress the implementation of teaching techniques and strategies that utilize strengths to compensate for weaknesses, and are what is termed either "modality-" or "subject-specific." Examples of *modality-specific accommodations* would include allowing a child with severe dysgraphia (handwriting difficulty) to take examinations orally, to use a typewriter or word processor/computer, and/or to have reduced written (homework) assignments. Examples of *subject-specific accommodations* would include allowing a child with dyslexia (reading disability) to learn from audio tapes rather than textbooks and to have examinations read to the child, or allowing a child with dyscalculia (mathematical disability) to use a calculator.

Regardless of which type of accommodation is implemented, the use of un-timed examinations appears to be a very effective accommodation for a variety of different learning disabilities. When children with learning disabilities who cannot finish their test during the regular testing period due to their disability are given increased time to take the examination, their grades often markedly improve.[9]

"...it has been suggested that if all classroom sizes were reduced to less than 15 students per room fewer learning disabilities would be diagnosed."

An IEP goes into significant detail regarding accommodations for a student, and will often specify in exact time limits the types and kind of special education assistance that a child is to receive at school. For example, an average school week may be divided into so many minutes to be spent in the regular classroom, so many minutes in the learning disabilities resource room, and so many minutes with the speech-language pathologist.

The student's "present level of performance" is the basis that the multidisciplinary team uses for writing goals and objectives in the IEP. Levels of performance must be specific and are determined through information derived from standardized tests, teacher-made assessments and observation. The IEP should address every portion of the school day that would benefit from adaptation, including recess, transportation, school trips and school-sponsored after-school activities. IEP areas that are sometimes overlooked include issues such as the appropriateness or inappropriateness of withholding recess time and other punitive responses to the child's disability (which are to be discouraged), and the impact of the IEP on social and recreational activities such as exclusion from team sports. Although discipline issues are not usually addressed unless formal diagnosis includes a *behavior disorder* (and it can), this should not be interpreted as broad leeway to employ disciplinary measures in place of learning strategies.

"An essential element in every IEP is the need for the child's regular and special education teachers to routinely communicate and periodically share information on effective (as well as ineffective) strategies.

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The most difficult item to get placed in a child's IEP is a sufficiently detailed list of regular classroom accommodations. Teachers trained in special education are familiar with a large number of intervention strategies. Regular education teachers, on the other hand, are not always sufficiently well-grounded in the use of similar and supportive accommodations in their classroom setting. An essential element in every IEP is the need for the child's regular and special education teachers to routinely communicate and share information on effective (as well as ineffective) strategies. This most common sense strategy is frequently overlooked; as a result, many regular classroom teachers expect that children with learning disabilities will simply leave for their special education sessions and return to their class "all fixed."

Speech-language pathology, physical, and occupational therapy goals also may be included as part of an IEP. Interventions in these specific areas will be carried out by the relevant professionals in collaboration with the child's other teachers. Another domain in which many children with learning disabilities need added help, even though it is not a specific school subject, is the area of study skills and learning strategies. Children with LD frequently fail to acquire the same essential learning routines that other students often master by osmosis. Although some schools offer specific course training in study skills, this issue might need to be identified as a separate goal in an IEP if courses are not available.

Two commonly applied LD interventions warrant further, more detailed discussion: (1) increased homework and (2) tutoring. While both strategies can be effective in some cases, each is often overemphasized to the detriment of a well-rounded IEP. Homework should not be made the primary treatment focus for learning disabilities, especially in the early grades. In

fact, limitations on homework time may need to be placed in a young student's IEP. A child's grades should reflect that the student has successfully learned the material to be mastered at that grade level and not just that a specific amount of homework has been turned in. It is all-too-often forgotten that homework is a means to an end and not an end in itself.

Tutoring should come under the same sort of restrictions as homework. Like homework, tutoring is important, but should not be used *in place of* necessary classroom interventions. If student support services and classroom accommodations are appropriate, then after-school tutoring may be less necessary. In most situations where a child with learning disabilities attempts to meet expected school performance levels solely through the use of extensive extra homework and tutoring, the additional time required to keep up increases annually to the point where it eventually becomes prohibitive. The advisability of assigning extended homework time and/or tutoring should also be evaluated within the larger context of the child's social and emotional behavior and development.

These comments on homework and tutoring are not meant to suggest that children with learning disabilities may not need to work harder and spend some extra time on academics as compared to their peers. Rather it should be recognized that a child's after school time should be infringed on with only the greatest caution, especially in the early years. In some cases, for example when children with learning disabilities attend private or parochial schools that have no special services, tutoring may represent the only intervention available outside of changing schools; as with resource services, close communication needs to be maintained between the regular classroom teacher and the tutor.

"The term "inclusion," and its implications for children with — and without — learning disabilities, is a confusing one."

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Inclusion[10]

"Inclusion" refers to the process and practice of educating students with disabilities in the general education classrooms of their neighborhood school (the school they would normally attend if they did not have a disability).[11] The term "inclusion," and its implications for children with — and *without* — learning disabilities, is a confusing one. Any discussion of inclusion must address the involvement of the special education student in the regular classroom on at least two different levels. The first, inclusion *per se*, refers to the provision of as much as possible of the educational services to a child with learning disabilities within his or her regular classroom with appropriate aides and services (similar to what in the past was referred to as "mainstreaming"). The second level, referred to as "full inclusion," applies to the provision of all education services (regular and special) within the regular classroom at all times. It should be noted that the term "full inclusion" — while generally understood to be more involved than "inclusion" — has no fixed definition and means different things to different professions, schools and advocates, and both inclusion and full inclusion are the subject of much debate and discussion among researchers and professionals.

The issues related to inclusion are confusing to parents as well as professionals, especially when it comes to the array of opinions that exist regarding placement of students with learning disabilities. Certainly, parents of children with learning disabilities want their children to receive the appropriate help to allow them to learn successfully. Years ago such services were available only in segregated classes. If the services had been routinely available in the regular classroom setting, parents would probably never have opted to have their children taken out for additional help. Indeed, the stigma associated with being labeled a "special education" student remains a major stumbling block for many parents still struggling to understand the implications of learning disabilities for their child.

Compounding the complexity of the inclusion issue is the fact that some parents sincerely believe that segregated services may be the only way their child will receive the help they need while others are convinced that the most helpful and least restrictive environment in which to provide special services is the general classroom. One caveat to any discussion remains: children who exhibit severe learning disabilities might not be amenable to full inclusion except under the most heroic of circumstances.

To some, commitment to full inclusion is felt to hide a secret belief on the part of many teachers and educational administrators that children with learning disabilities do not really have different learning needs but only need to try harder. If the inclusion movement avowed up front that it might very well cost more to effectively include children with learning disabilities in the regular classroom, a lot of parental anxiety would be allayed. In order to realistically and best address learning disabilities, the school's commitment to assisting students with learning disabilities should not center around one single theoretical model of service provision but should rather be to a full continuum of services to match the wide range of individual needs of all children with learning disabilities.

"Unfortunately, perhaps the most commonly employed intervention for children who are experiencing difficulties with learning in the classroom is retention..."

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Retention and Motivation

Retention

Unfortunately, perhaps the most commonly employed intervention for children who are experiencing difficulties with learning in the classroom is retention, commonly referred to as being kept back, repeating a grade, or failing a grade. Among many in the health and education fields alike, there is a presumption that the major reason a child fails to master the skills and knowledge that are transmitted during the school year lies in the area of motivation. Penalizing a child by requiring him or her to redo the school year is incorrectly believed to be necessary to allow the class material to "sink in" through repetition. Tragically, many children are failed and subsequently required to repeat grades without the slightest consideration given to the possibility that the child's problem might be due to LD rather than motivation. In fact, state departments of education often fail to put any limit on the number of times that a child can repeat a grade before it becomes

mandatory that some diagnostic assessment be performed. Sad as well is the fact that many parents are talked into accepting retention as an "intervention" that is preferable to having a "label" such as learning disabilities applied to their child's problem.

Retention without diagnosis represents — in effect — gross institutional educational negligence and should never be condoned. Furthermore, retention is never an appropriate accommodation for children with learning disabilities — it is unacceptable because it treats a symptom rather than meeting the underlying need. Whereas symptomatic treatment is sometimes acceptable in medicine when accurate diagnosis is either unavailable or not practicable, this is not the case with academic failure. In the case of school failure, treatment without diagnosis should be considered educational malpractice.

It is very important to understand that objections to the routine use of retention to address learning disabilities does not imply support for the notion of "social promotion" (i.e., moving a child to the next grade even though the child has not acquired the appropriate skills or knowledge). Children who are failing or experiencing significant academic difficulty need their problems to be appropriately diagnosed. "Treating" such children with retention or ignoring their problems by promoting them even though they have not mastered the required skills and knowledge both represent serious deficiencies that can only delay appropriate diagnosis and the institution of effective treatment.

"In the case of school failure, treatment without diagnosis should be considered educational malpractice."

■

Motivation

Motivational problems are perhaps the best known and least understood possible cause of school failure. A common conclusion of adults trying to pin down the cause of a child's educational problems is that academic motivation is to blame. Lack of motivation will occasionally play a primary role in school failure, but not nearly as often as some professionals first think. In point of fact motivation is a dangerously overplayed cause for school failure. While the aphorism "if you try harder, you will do better" has a certain amount of superficial validity, it does not withstand close examination. Common sense testifies to the fact that it is simply untrue that the students who work the hardest get the best grades and that those who fail did not apply themselves. Anecdotal experience alone could make out a very strong case for the reverse occasionally being true: gifted students may not be diligent studiers while struggling students might burn the midnight oil in an attempt to master a difficult subject. Professionals who deal with children experiencing difficulties in classroom learning should never assume motivational problems. The presumption should always favor undiagnosed learning disabilities.

The ambiguities related to motivation cannot be overstated, especially given the connection between a child's self-esteem and their willingness and desire to work. For instance, the fact that a child claims to not want to try does not actually support the presence of a diagnosable motivation problem.

For all practical purposes, young children cannot admit the fact that something their parents and teachers (the significant adults in their lives) expect them to be able to do — something they daily observe their peers do with ease — is also something that they simply cannot do. These children are left to conclude that they must be very bad indeed to not be able to succeed where they are asked to. Their response to the situation of trying and failing may appear counterintuitive to the adult: *Long before a child will come to the terrifying admission "I can't", the child will defensively fall back on "I won't."* This is not a phenomenon solely of the educational world. Medical professionals who deal with chronically and seriously ill children often have to deal with the related tendency for young patients to blame themselves for their illness. Children tend toward a moral explanation over a biological one. It is up to the adults in their lives to seek an objective distinction between the two causes.

"Long before a child will come to the terrifying admission 'I can't', the child will defensively fall back on 'I won't.'"

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Medication

As was noted in the chapter on the "Role of the Health Care Community," there are no specific drugs to treat learning disabilities. Educators should be aware that although there are no drugs effective in the direct treatment of learning disabilities, certain medications can be quite helpful in the management of Attention Deficit Disorder (a developmental disorder concerning a child's attention span — see Glossary for more detail), which can be associated with LD. Improving the attention span of children with learning disabilities will often have a positive, if indirect, impact on a child's classroom performance. Such treatment, however, can be controversial and drugs like Ritalin (generically known as methylphenidate) have experienced shifting tides of support and opposition.[12]

Table 3

Select Possible Causes of School Failure

- Learning Disabilities
- Attention Deficit Disorder
  (with hyperactivity)
  (without hyperactivity)
- Mental Retardation
- Psychiatric Disorder
  (such as Depression)
- Visual Impairment
- Hearing Impairment
- Language Disorder
- CNS Degenerative Disease
- Severe Family Problems
- Frequent School Absence

The Gifted Student with Learning Disabilities

Careful attention should be focussed on possible learning disabilities in children who are very bright — children who prior to the start of formal schooling give every evidence (usually in the form of verbal precocity) of excelling at learning. These children may compensate so well on their own for their disability that the possibility is not considered that they might have any problems with learning. While they may not exhibit academic failure or even appear to be struggling with regard to school work, their good academic performance may nevertheless reflect chronic under-achievement, and their self esteem may suffer accordingly. Because of their high intelligence level, gifted children are less likely to achieve quantitative cutoffs for a diagnosis of learning disabilities. They may nevertheless be seriously affected by their information processing problems. In addition, whenever such bright children develop behavior disorders related to frustrations with learning, they are likely to be much more resistant to treatment.

The signs and symptoms that can make parents, teachers and physicians think that they might be dealing with a gifted child with learning disabilities are similar to those in other instances of learning disabilities but simply more exaggerated or more subtle. In a sense, suspicion is half the diagnosis.

Secondary and Post Secondary Education

Although children with learning disabilities benefit greatly from diagnosis and "treatment" of their disorders, the impact of LD tends to persist throughout the life span. As a result, some attention should be paid to the implications of learning disabilities for secondary education and post-secondary education.

Differential Diagnosis: Why Children Fail

Of course, school failure is not caused solely by learning disabilities. It may be useful to understand additional causes of educational failure to cast light on how these conditions differ from learning disabilities. For example, students might fail academically because of severe family problems or depression. Similarly, students might experience school difficulties due to specific hearing or visual impairments, or for any one or a combination of the selected physical or psychological reasons that are listed in Table 3. In order to provide a better sense of how such causes of school failure interact with LD and each other, some of the most commonly diagnosed of these causes of school failure are discussed further in Appendix 2. Critical to any understanding of why children fail in school is the fact that any or a combination of the causes cited in Table 3 may exist in combination with learning disabilities.

School systems apportion special education resources on the assumption that fewer children will qualify for help in secondary education than in elementary education. While it is true that many children with learning disabilities will require fewer special interventions in their high school years, this is not true for all children with learning disabilities. Even when a secondary school's special education resources are maintained at similar levels, the added stresses of increasing academic departmentalization (e.g., multiple teachers), a larger and more complicated physical plant, and all the turmoil associated with puberty can push the compensatory skills of adolescents with learning disabilities past their limit. With the difficulties of consistent student monitoring further impeded by multiple grade-level transitions (middle school, junior high school, high school), parents of adolescents with learning disabilities should probably consider the need to request IEP reviews more frequently than once a year.

"...the impact of LD tends to persist throughout the life span."

■

At this point in the student's life, the interdisciplinary IEP team also becomes the Transition Planning Team (TPT). Team members include the student, parents, school personnel and, when appropriate, representatives of agencies and service providers who are likely to provide or pay for services. The job of the team is to take a pragmatic look at the student's interests, aptitudes, potential and vision for the future using both academic and anecdotal data and to design an appropriate plan that will ensure an appropriate transition to job training, vocational education, college or university. The Individuals with Disabilities Education Act describes transition services as "a coordinated set of activities based on individual student needs."[13] Ideally, transition services should contain the following components:

- coordination among regular and special education, vocational education, guidance and counseling services, and community and adult service providers;
- counseling and testing to help students and parents set realistic goals;
- encouragement of parental involvement;
- vocational preparation, such as actual job experiences;
- collaboration between secondary and postsecondary institutions;
- systematic follow-up of students who have left high school; and
- assurance that academic programs correspond positively with potential and goals.

Other services to be considered in planning are rehabilitation counseling, assistive technology services — such as computers and calculators to allow students with disabilities greater independence and productivity — recreation therapy and social work services. Together, these services should comprise a very comprehensive transition program for learning disabled students. Unfortunately for most students with learning disabilities, however, the transition plan is often only a formality on paper with very little substantive support or direction.

Under existing special education law transition planning is to begin no later than age 16 (or younger if appropriate). An early approach is critical to future educational success, especially in light of the fact that, currently, 36% of all students with learning disabilities have already dropped out of school by age 16. Of those students, 29.1% report that they had attended secondary or equivalency program(s), although only 2.8% completed a program.[14] For these students, transition services as now defined are simply inadequate or begin too late.

As has been stated, students with learning disabilities have average or above-average intelligence. Yet in 1991-92 only 48.7% graduated with a high school diploma. Only 4.4% went on to a four year college or university (with a 0.4% completion rate), 13.7% attended 2 year colleges (with a completion rate of 2.9%), and 19% attended vocational schools (with a completion rate of 11.1%). It is hoped that well written, well thought out, and well implemented transition plans can dramatically change this data.

Factors that have been documented to positively affect the secondary school performance of teenagers with learning disabilities include: (1) less mainstreaming; (2) the routine provision of in-service training and special materials to regular education teachers who have mainstreamed students with learning disabilities in their classrooms; (3) smaller sized mainstreamed classes; (4) modified grading systems to meet equivalent academic standards; and (5) the provision of tutoring. Attention paid to such factors may pay off as post-secondary dividends for students with learning disabilities.

Once at college, or another post-secondary educational institution, students with learning disabilities may find increased levels of support. While the high school years may represent a period of struggle to obtain needed resources (despite the fact that with help the cognitive unevenness that underlies their children's learning disabilities may have improved by adolescence), an increasing number of colleges and universities are more willing than public high schools to work towards accommodating the learning needs of young adults with learning disabilities. Under the impetus of Section 504 of the "Rehabilitation Act" of the "Americans with Disabilities Act," graduate and professional schools are likewise required to negotiate needed test and curriculum modifications.

"As has been stated, students with learning disabilities have average or above-average intelligence. Yet in 1991-92 only 48.7% graduated with a high school diploma."

The Need to Collaborate with Health

Although the "treatment" of learning disabilities takes place in the educational setting, it is imperative that educators reach out to more actively involve the health care community in dealing with children with learning disabilities. Health care providers (especially nurses and pediatricians, see Introduction) are very often in a position to help with the identification of suspected learning disabilities and can be an essential partner in diagnosing students as having LD. Increasingly, health professionals are involved in the provision of special education services in the school itself as well.

The rationale behind bridging the gap between the worlds of education and health care is uniquely compelling in the case of learning disabilities even without the fact that an interdisciplinary team is required for an assessment of LD; it is a sad but increasingly recognized fact that educational failure leads students to engage in risky health behaviors. From drinking to unsafe sex, from smoking to drug use, children and youth who experience problems with school have a high incidence of undesirable health risks. Educators will find that the public health community and, indeed, many other health professionals are willing to learn how they can work with schools to ensure that children are successful in school and ready to become healthy for a lifetime.

It is important that educators reach out to engage this natural interest on the part of health care providers. Teachers have much to bring to the table in such collaboration. They spend some six or seven hours each day with their students; this puts teachers in a position to observe their students' physical and emotional changes and trends on a daily basis. Such information, shared by an educator, can prove pertinent to health care providers arriving at diagnoses, making medical decisions or writing health care plans. Educators and educational administrators can approach local medical and nursing associations, hospitals and health plan administrators to begin the dialogue for cooperation.

"The rationale behind bridging the gap between the worlds of education and health care is uniquely compelling in the case of learning disabilities..."

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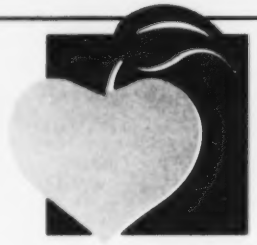
Role of Parents



Naturally, a child's first and best teacher is a parent. Likewise, no one is in a better position — from pregnancy on — to ensure that a child grows up healthy and stays that way. Because of the critical role parents play in a child's life, health providers and educators alike should know a little about how parents and/or primary caretakers can help in diagnosing and "treating" learning disabilities and how they may react to LD.

The Primary Role of Understanding in Treatment

Once the diagnosis of learning disabilities has been made, the single most important component of any intervention program needs to be *understanding*. The very nature of this condition (learning at an average or above average rate in some areas, but at a much slower rate in other subjects) is frequently a source of great confusion to both parents and professionals. The process of eradicating the prevalent myths and distortions with regard to learning disabilities is very important. This process has been referred to as "demystification."

The indirect signals that adults will send to children with learning disabilities when they themselves remain confused about the very nature of the problem can have a serious negative emotional impact on these children. It is imperative that all the adults involved with children with learning disabilities acquire at least a minimal understanding of the major characteristics of the disability. This will produce an attitude change (consciously or unconsciously) that will dramatically affect how these children view themselves and perceive others to view them — an attitude change that educators and health professionals can facilitate.

Parents — and professionals — can understand more about learning disabilities, and about how they affect children in the home, at school and among their peers, through a number of different avenues:

- reading about learning disabilities is an excellent starting point;
- support groups (such as those sponsored by the Learning Disability Association of America [LDA]) are a rich resource for parents;[15] and
- when necessary, individual counseling can be valuable.

Parents and the Process

Parents often end up becoming practical experts in learning disabilities over the years of working to ensure that their children receive the LD services they need. But, for the novice, some counter-intuitive processes should be clearly understood. Chief among these is the fact that even children whose diagnosis is certain will need to have their status periodically reviewed. What's more, under state definitions, children may later be found no longer eligible for special services under the Individuals with Disabilities Act; this does not, however, mean that their learning disabilities have disappeared (See endnote 4). They are still eligible for services under Section 504.

The Emotional Impact of Learning Disabilities

Some of the risks of undiagnosed learning disabilities have been discussed in this paper, including the potential for school failure and related risky health behaviors and mental health problems (such as chronic poor self-esteem). But, as important as it is, the process of identifying a child with LD brings with it emotional impacts as well. Naturally, assessment, diagnosis and "treatment" of learning disabilities can affect a child; reactions range from self-doubt and uncertainty to eventually, perhaps, relief and renewed self-confidence. However, the parent, too, will experience a range of responses to the diagnosis of their child as learning disabled.

Some parents enter what is almost a grieving period for their child when it is finally confirmed that he or she has learning disabilities. Parents may worry about whether or not their child will ever be able to succeed in school, and may fear that their son or daughter will pay a price for being "labeled" with LD. It is not at all uncommon for a parent to feel considerable guilt for having "given" their child learning disabilities, especially if they also had school problems as a child that were not addressed. In addition, the day-to-day demands of helping a child cope with LD (and the tendency of learning disabilities to persist year after year, even as a child makes academic progress and grows older) can cause frustration in parents. Professionals working with parent support groups report that some parents occasionally feel a sense of hopelessness for their children.

"Some parents enter what is almost a grieving period for their child when it is finally confirmed that he or she has learning disabilities."

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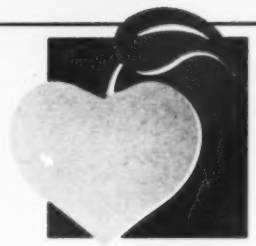
In addition, everyone concerned with learning disabilities also needs to be aware that the presence of learning disabilities can act as a major stress in families and may complicate and confuse the impact of other stresses on and transitions in family life.

But the news is by no means all bad. After going through a period of fear and frustration over what is wrong with their child, the diagnosis of LD and subsequent development of an IEP can be of great comfort to parents. Many adults are relieved to know that their child isn't "slow," but rather has a specific disability that will respond to "treatment" and even perhaps lessen in impact with age. Emotional reactions can be very positive, especially when the parent him- or herself had a learning disability as a child and experienced support and assistance from the adults in their lives. Such parents take a child's diagnosis in stride because they coped successfully with LD and believe that their child will do so as well.

Educators and health professionals working with children and families should be sensitive to the emotional impact learning disabilities will have on parents and their children. As with LD itself, understanding, patience and support are important components to helping parents cope with the emotional effects of LD. Case studies show that parents who find a supportive ally in the school, doctor's office, or community feel better and are able to do more to become advocates for their child.

Conclusion



Learning disabilities are the most common disabilities known today. They affect children and adults alike, but impact children with special force, threatening them with school failure and a host of mental health, economic and social repercussions as a result. In addition, with LD often comes poor self-esteem which is increasingly recognized as a major factor in risky physical health behavior. Likewise, students who achieve poorly in school run substantial risks of being unable to access or afford proper health care later in life.

As trite as it may sound it is of critical importance that health care providers and educators understand that children with learning disabilities grow up. And such children can grow to become adults with serious problems. When poor school achievement in childhood leads to the development of chronic low self esteem one can expect under-achievement to persist into adult life. The failure to adequately diagnose and treat learning disabilities in childhood contributes to the higher representation of adults with learning disabilities among (1) illiterate adults; (2) unemployed adults; (3) prisoners; and (4) recipients of Aid to Families with Dependent Children and other public welfare.[16] On the other hand, increasing numbers of young adults with learning disabilities are understanding their disability, building the necessary self-advocacy skills and are entering graduate and post graduate education and successfully negotiating accommodations for their persistent learning problems. Unfortunately, current statistics do not yet adequately reflect the outcomes for learning disabled children who have received optimal diagnostic and therapeutic interventions.

Because learning disabilities are often diagnosed in a medical setting, health care providers — and especially pediatricians and nurses — should be aware of the warning signs of LD and of the important role they can play in helping assess learning disabilities. The significance of involving the health community in assisting children with LD is only highlighted by the prevalence of school-related problems that show up in clinical practice. Some studies have placed the percentage of school-related pediatric visits at more than five percent. Coupled with the potential for negative health outcomes, these facts clearly argue for an increased understanding of learning disabilities among health care providers and a closer working relationship between the health and education sectors.

Because learning disabilities are "treated" in an educational setting, educators — and especially classroom teachers and special educators — should be aware of the warning signs of LD and of the important part health professionals can play in assisting them as they work to help students with learning disabilities become qualified for and receive services. Certainly, classroom teachers have every right to be confused by the wide array of conflicting recommendations and theories regarding the diverse problems that children with learning disabilities may experience with learning. It is nevertheless mandatory that they understand the basics of what learning disabilities are and how they might affect a child's performance in the classroom. This is especially true because, currently, needed special services may not be

available to a student for a wide variety of reasons (some very rural areas have only limited services and often little experience with some of the rarer and more severe learning disabilities; private and parochial schools often have few or no special services available, although the situation is improving).

The absolute least — and a not insignificant minimum — that must be obtained for every child with learning disabilities is a simple understanding of the condition, and communication to the child that it is not his or her fault — that the child is not stupid, bad, crazy or lazy. It is critically important to understand the positive impact on the child's self image that comes when the teacher simply recognizes that the child is trying hard, even in the absence of any more successful intervention. Understanding itself, and the many small accommodations that will automatically flow from it, have the added virtue of costing nothing.

Together, educators and health practitioners can make a profound difference in the schooling and lives of learning disabled students. Learning disabilities bring into sharp relief the fact that in promoting the optimum development of a child, health and education are inextricably linked. In this regard, as with so many areas affecting a child's life, education and health professionals need each other to be fully effective. And learning disabled children need adults in their lives to cooperate to allow them the future they deserve — a future in which they have the potential to fully participate as tomorrow's parents, work force, policymakers, caretakers and leaders.

"The absolute least — and a not insignificant minimum — that must be obtained for every child with learning disabilities is a simple understanding of the condition, and communication to the child that it is not the child's fault — that the child is not stupid, bad, crazy or lazy."

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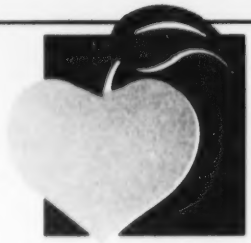
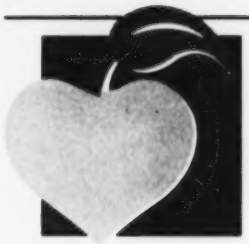
Summary Recommendations



- Professionals in both the education and health fields should remain aware of the relatively high incidence of learning disabilities in the general population and the lifelong implications of LD.
- Physicians and health care professionals providing routine health care for children should be familiar with and carefully assess any early developmental deviations that may reflect early markers for later learning disabilities.
- Learning disabilities may show up in a medical setting as any of the following: unexplained emotional symptoms, behavioral disorders, and somatic complaints such as headache, stomach ache, leg pains and lethargy. Since the potential for learning disabilities should be considered in a diagnosis, routine assessment of such complaints should include a careful consideration of school achievement history.
- Educational and health professionals who work with young children should advocate for early, detailed, and accurate LD assessment processes and, in the case of diagnosed LD, should support development of educational programs designed to meet the child's special needs.
- All children with learning disabilities should receive a comprehensive medical assessment by a physician (pediatrician, developmental pediatrician, child neurologist, or geneticist) with expertise in identifying known medical causes of learning disabilities, including the input of medical specialists and sub-specialists.
- All children with learning disabilities should have access to routine, primary, comprehensive pediatric health surveillance from either a board-certified pediatrician or a board-certified family practitioner. The varied medical problems that may be associated with learning disabilities require close monitoring from a professional familiar with the impact of the disability on a developing child.
- Educational and health professionals who work with the families of children with learning disabilities should provide ongoing education and support for the parents as to the neurobiological causes of LD. It should be noted that exposure to such information at a single counseling session is rarely sufficient; full explanation and repeated input from a diversity of professional perspectives will be needed by parents of learning disabled children.
- Educators should never keep a child back a grade level (i.e., allow a child to fail a grade) without making some formal attempt to diagnose and understand the reason for the failure.
- All professionals involved in undergraduate, graduate and post graduate education in the fields of education and health care should be exposed to (or lobby for the inclusion of) specific course work in and appropriate clinical exposure to the basic concepts of learning disabilities as related to both child and adult populations.
- Most of a child's learning — indeed, probably their most important learning — will occur *outside* the formal classroom setting. Both health and education professionals should be aware of the possible impact of learning disabilities on the acquisition of learning beyond the schoolhouse door.



Appendix 1:
LD Myths and Misconceptions

All teachers and physicians are experts in learning disabilities.
Professionals in child health and education often have a limited understanding of the nature of learning disabilities. Parents may have to search for the appropriate expertise to diagnose and manage their child. This deficiency in professional training is especially serious since "understanding" is one of the most effective and inexpensive ways of treating LD.

Since learning disabilities are so common, they must be easy to diagnose.
Learning disabilities are very often "hidden disabilities" — although they commonly occur they are often difficult to spot. While some children exhibit striking signs of LD and clear patterns on simple screening tests, others will need careful and extensive assessment by an interdisciplinary team to identify an underlying learning disability or disabilities.

IEPs mean that students will go to special education classes.
Interventions for most children with learning disabilities can occur in the regular classroom; the IEP simply formulates how such interventions will be implemented.

It is the regular teacher's job to teach all children, regardless of so-called disabilities.
Learning disabilities represent a complex challenge to the regular classroom setting and one that needs to be addressed with a wide variety of intervention strategies — a variety that demands the involvement of a number of different professionals. Close working relationships with other professionals should prevent the teacher from feeling alone, overburdened or abandoned.

Some special medication, diet or other treatment can "cure" learning disabilities.
There is no magic pill, quick fix or one-stop cure for learning disabilities. When a diagnosis of LD is made, parents should to be told that they are in for the "long haul." Love, support, attention and understanding remain the mainstays of long-term treatment of LD.

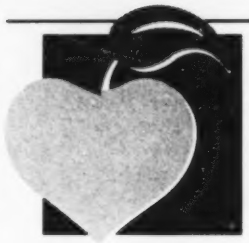
Children outgrow learning disabilities.
Learning disabilities are life long. However, many adults with LD who receive special attention as children will build strategies to successfully adapt to life's challenges.

Most children who experience difficulties with learning are just "slow."
Learning disabilities occur in children at all levels of intellectual ability. Some children with LD are bright enough to be academically gifted, some are average, and a few are below average. The specific neurological deficits that cause learning disabilities are distinct and separate from general cognitive ability.

Learning disabilities are caused by poor parenting.
Childrearing patterns and home discipline may have an impact on classroom behavior, and parental involvement in education certainly has an effect on a child's enthusiasm for and success in school, but parenting skills have no association with the presence or absence of learning disabilities.

Learning disabilities affect everything at school.
Learning disabilities are relative phenomena. The underlying patterns of strengths and weaknesses that cause LD may not seriously affect a child's performance in one classroom setting or at one grade level but may account for significant difficulties in another class or at a different grade level.

Learning disabled students have school problems because they don't try hard enough.
Learning disabilities are not motivational. Ironically, even if an LD student claims not to want to try at school he or she may simply be covering up for their fear of failure. A child will sooner resort to saying, "I won't" than admit the more frightening, "I can't." It is up to adults to help children with LD learn to compensate successfully.



Appendix 2:
Select Causes of School Failure

Attentional Deficits

The term "attentional disorders" is used to characterize children with a varying constellation of short attention span, impulsivity, distractibility, and sometimes hyperactivity (unusually high level of activity) or hypoactivity (underactivity). Children with attentional disorders frequently exhibit difficulties with both their attention and behavior that can interfere with their classroom performance. The terminology for attentional disorders is constantly changing, to the confusion and consternation of *both* parents and professionals. Attention Deficit Disorder (ADD), Attention Deficit Disorder with Hyperactivity (ADHD), ADD-combined type, ADD-predominantly inattentive type, ADD-predominantly hyperactive-impulsive type, Executive Function Disorder, and Primary Disorder of Vigilance are just some of the terms that clinicians and researchers use. The major areas of intervention used with children exhibiting attention deficit disorders include: classroom accommodations, behavior management counseling for the family, and possibly medication. Between fifty and seventy-five percent of children with attentional deficits also have learning disabilities; it is important to keep in mind that each will benefit from being specifically and separately addressed.

Often, children with attention deficit disorders exhibit notable hyperactivity. Diagnosis of such hyperactivity is separate and not necessarily a part of all attention deficit disorders. According to current data, males seem more likely to exhibit hyperactivity early on in their school career; females are more likely to have attentional problems without hyperactivity early on and then show behavioral and emotional problems in middle to late adolescence. Girls with both mild attentional and learning disabilities are more likely to withdraw, try harder to compensate, and successfully keep their problem concealed, perhaps later developing psychological problems as the cost of this compensation.

Although LD and attention deficit disorders are commonly related, early identification of attentional disorders may or may not help the identification of associated learning disabilities depending on whether or not one disorder masks the other. It may be of interest to physicians, teachers, and administrators to note that children referred to a health professional because the child is having "staring spells" in class are much more likely to have attentional problems than petit mal seizures (commonly assumed to be the primary cause of "staring spells").

Physical Disabilities

Physical disabilities can lead directly to educational problems as well. Children with visual impairment require ophthalmological assessments and eyeglasses; children with hearing impairment need audiological assessments, otolaryngological evaluations, and possibly hearing aids or other assistive listening devices. Both of these groups of children will also benefit from simple classroom accommodations (such as preferential seating) that take into account their sensory disabilities.

Language Disabilities

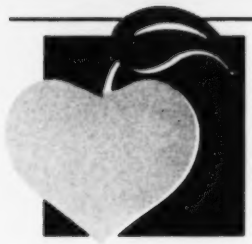
A language disorder may involve the form of language (phonology, morphology, syntax), the content of language (semantics) and/or the function of language (pragmatics) and affect spoken, written and/or other symbol systems. Children may experience educational difficulty as a result of language disorders (developmental disorders related to language, i.e., expressive language and/or receptive language problems) as well. For such children, the discipline of speech-language pathology has developed a number of intervention techniques that can effectively be used to assess and treat their specific disability. For more information, contact the American Speech-Language-Hearing Association.

Brain Tumors

Even more severe among physiological disorders, brain tumors may occasionally cause children who develop them to display learning problems at school. In this case, educational difficulty may be symptomatic of a critical illness. In fact, in the case of a tumor, a careful documentation of academic deterioration may provide the earliest clue to what may very well be a life-threatening situation. Although rare, brain tumors highlight the need to take a serious approach to diagnosing the underlying causes of educational failure. If the child's learning difficulties are passed off as motivational, the resulting failure to assess the child might delay a serious medical diagnosis in a case where time is critical to long-term survival. Similarly, children with degenerative diseases of the central nervous system may first evidence academic problems. As with brain tumors, a careful medical assessment will be needed to make an accurate diagnosis and determine whether academic difficulties are the result of a serious and worsening nervous system disorder.

Emotional Disorders

Like physical impairments, emotional and psychosocial problems can have a serious effect on a child's ability to learn. Similarly, too, these causes of educational failure have their own fields of diagnosis and treatment; and, — as mentioned earlier — although these difficulties are not necessarily associated with LD, they commonly co-occur in learning disabled children. For children exhibiting any of a variety of different emotional diagnoses, there exists a range of professional psychological counseling and medical psychotherapy. In addition, emotional problems may be treated with medications (psychopharmacologicals). Unlike some other disorders that cause educational problems, major psychiatric conditions are not treatable through minor classroom accommodations and are probably beyond the typical experience of school counselors.



Glossary

APGAR score: A technique to assess the status of a newborn baby at one and at five minutes of age by assigning scores of 0 to 2 for each of five descriptors: "A" for appearance or color; "P" for pulse or heart rate; "G" for grimace or response to stimulation; "A" for activity or muscle tone; and "R" for respiration or breathing effort. Named after Virginia Apgar (1909-1974), the APGAR score is an acceptable measure of the acute status of the infant. It is, however, a poor predictor of later developmental outcome.

Attention Deficit Disorder (ADD): A disorder affecting the attention span, which often co-occurs (although not necessarily) with learning disabilities. ADD can affect language skills, social behavior, and schoolwork and may be indicated by impulsivity. ADD is commonly compounded by attendant hyperactivity, when it is known as Attention Deficit Hyperactivity Disorder (ADHD). The child whose school difficulties are predominantly attentional in nature will exhibit uneven performance (sometimes As and sometimes Fs) in all subject matters; the child with LD will tend to exhibit consistently poor performance in specific subject areas. See also "Attentional Deficits" in "Appendix 2: Select Causes of School Failure" for more information.

Cerebral Palsy: A group of syndromes that exhibit disordered movement and posture, delayed motor development and abnormal findings on neurological examination. The brain injury that causes cerebral palsy is usually *pre*-natal rather than *peri*-natal (occurring at about the time of birth). The disorder is chronic and non-progressive with a tendency to gradual improvement in early childhood. The incidence of associated developmental disabilities is quite high; those children with cerebral palsy who are not mentally retarded usually have learning disabilities.

Failure To Thrive (FTT): A condition in which a child under two years of age exhibits significant growth failure in the absence of an obvious cause. Whatever the final identified reason for the growth failure, the long term outcome for FTT includes an extremely high percentage of developmental diagnoses including learning disabilities.

Fetal Alcohol Syndrome (FAS): A developmental malformation syndrome resulting from the effects on the fetus of maternal alcohol ingestion during pregnancy. Prenatal alcohol exposure can produce a variety of effects that range in severity from overt physical anomalies and mental impairment, including mental retardation, to more subtle cognitive and behavioral dysfunctions. FAS denotes the following: (1) prenatal and postnatal growth retardation, (2) Central Nervous System dysfunction and (3) facial abnormalities.[17] When mental retardation is not prominent, attentional deficits and learning disabilities with pragmatic language disorders tend to become increasingly severe in adolescence.

Fragile X Syndrome (FraX): A recessive x-linked genetic syndrome that occurs predominantly in males. Victims demonstrate a long, narrow face with thick features and other specific physical traits. Developmental presentations include mental retardation, autism, speech-language disorders, learning disabilities, and mathematics and motor disabilities. Females are often more mildly affected.

Hydrocephalus: Known as "water on the brain," this condition results in an enlargement of the ventricular system of the brain (accompanied by an enlargement of the head) due to a blockage in the circulation of the cerebrospinal fluid. Treatment is usually neurosurgical; commonly a shunt tube is placed to decrease the pressure on the brain. Prolonged, untreated hydrocephalus can cause mental retardation, cerebral palsy and learning disabilities. Some children with hydrocephalus can exhibit "cocktail party chatter" — a condition in which expressive language skills superficially develop well in advance of receptive language skills.

Hyperbilirubinemia: An elevated level of bilirubin in the blood producing a yellowish tinge to the skin (jaundice). In newborns (especially premature newborns) the brain is particularly susceptible to damage from high levels of bilirubin.

Lead poisoning (plumbism): A syndrome most commonly encountered in inner-city preschool children exposed to old lead-based paint chips. The ingested lead can cause anemia (a condition in which the blood is deficient in red blood cells, hemoglobin or in total volume), intestinal cramps and brain damage. Long-term effects include mental retardation, language disorders, learning disabilities and attention deficit hyperactivity disorders.

Macrocephaly: Large head size. Macrocephaly involves a head circumference more than 2 standard deviations above the mean for age. It can be associated with hydrocephalus, mental retardation and learning disabilities.

Meningitis: An infection of the linings surrounding the brain. Long-term secondary results of meningitis can include mental retardation, cerebral palsy, epilepsy, learning disabilities, attention deficit hyperactivity disorder, and hearing loss.

Microcephaly: Small head size. Although a small head size implies a small brain, a small brain does not necessarily imply a developmental disorder. Microcephaly is associated with various genetic syndromes, intrauterine infection, and fetal radiation. Related developmental disorders include mental retardation, learning disabilities and language disorders.

Minor Dysmorphic Features: Mild superficial malformations that appear as a result of a genetic syndrome. A dysmorphology score above 4 is considered to indicate some adverse effect on the fetus early in the first trimester. Increased dysmorphology scores are associated with developmental disabilities such as mental retardation, learning disabilities, and attention deficit hyperactivity disorder. Common minor dysmorphic features include: abnormal hair whorl patterns (such as multiple cowlicks), microcephaly, epicanthal folds, ear abnormalities, high arched palate, curved fingers, and widely spaced toes.

Prader-Willi Syndrome: A genetic syndrome due to a deletion on the long arm of chromosome #15 and characterized by floppiness and poor growth in infancy: overeating and marked obesity in childhood; mental retardation; learning disabilities; and language impairments. Behavioral problems associated with Prader-Willi Syndrome tend to increase in young adulthood.

Soft Neurological Sign (Minor Neurological Dysfunction): A neurological finding that cannot be interpreted as being either physiological or pathological without taking into account the individual's age. All "abnormal" soft signs are normal at some (usually younger) age. Soft signs reflect a generalized immaturity of the brain such as occurs in mental retardation and learning disabilities.

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LDA Overview

The Learning Disabilities Association of America (LDA) is the largest non-profit volunteer organization advocating for individuals with learning disabilities. LDA has over 60,000 members in 50 states, Washington, DC and Puerto Rico. The membership, composed of individuals with learning disabilities, family members and concerned professionals, advocates for the over two million children of school age with learning disabilities. The over 600 state and local chapters, through their affiliation with the national LDA, work continuously for individuals with learning disabilities, their parents and the professionals who serve them.

The Learning Disabilities Association:

- seeks to educate individuals with learning disabilities and their parents about the nature of the disability and inform them of their rights.
- encourages research in neuro-physiological and psychological aspects of learning disabilities.
- strives to create a climate of public awareness and acceptance.
- works to improve regular and special education through advocacy with the U.S. Department of Education and the State Departments of Education in each state.
- develops and promotes legislative assistance.
- disseminates information widely.
- works to establish career opportunities.
- promotes education and training on learning disabilities for special and regular education teachers.

LDA accomplishes its goals and objectives through its national committees on advocacy, adult issues, education, legislation, early childhood, mental health, membership, research, and communication/outreach. The board and committees are composed primarily of volunteer parents and individuals with learning disabilities, but its strength also springs from its close affiliation with professionals in the field, including the Professional Advisory Board, which offers counsel on professional and technical areas.

LDA offers the following services:

- Legislative testimony and information
- Information and referral network
- School program development

LDA members receive the national newsletter, *NEWSBRIEFS*, six times a year, along with state and local chapter newsletters. Parents learn how to advocate for their child and have access to support groups and educational meetings. Parents learn about federal and state laws that affect their child. They meet and share a common bond with other parents and professionals who have similar concerns. Professionals have access to the latest information relating to learning disabilities. Individuals with learning disabilities learn to understand the disability and advocate for themselves through support groups and conferences. LDA also publishes a journal, *Learning Disabilities: A Multidisciplinary Journal*, twice a year.

NHEC Membership

The National Health & Education Consortium brings together 58 of the nation's most influential health and education professional member associations, representing some 12 million constituents, to design strategies to better coordinate health and education services and programs.

American Academy of Family Physicians: represents 71,000 physicians

American Academy of Pediatrics: represents 45,000 pediatricians

American Association of Colleges for Teacher Education: represents 726 colleges and universities with undergraduate or graduate programs to prepare professional educators

American Association of School Administrators: represents 16,000 school administrators, primarily school district superintendents, central office administrators, principals, and professors of educational administration

American College of Nurse-Midwives: founded in 1955, is the national professional organization of over 5,000 certified nurse-midwives and students attending 46 accredited educational programs in nurse-midwifery

American College of Obstetricians and Gynecologists: represents more than 33,000 physicians specializing in obstetric-gynecological care

American Dental Association: represents 140,000 dentists

American Federation of Teachers: represents 750,000 teachers, para-professionals (teacher aides), school-related personnel, health-care workers, federal and state employees

American Hospital Association: represents 5,870 hospitals and over 50,000 physicians

American Indian Health Care Association: represents 36 programs and clinics which focus on the health care of American Indians

American Medical Association: represents 300,000 physicians

American Nurses Association: represents 201,000 registered nurses

American Psychological Association: represents 118,000 clinicians, researchers, educators, consultants and students

American Public Health Association: represents 30,977 physicians, nurses, therapists, health technicians, health support personnel, and other health professionals

American School Food Service Association: represents 65,000 child nutrition and school food service employees

American School Health Association: represents 4,100 health educators, nurses, physicians and dieticians

American Speech-Language-Hearing Association: national professional, scientific and credentialling association representing 82,000 audiologists and speech-language-hearing scientists

Association for the Care of Children's Health: represents 4,200 nurses, Child Life workers, and parent leaders

Association for Supervision and Curriculum Development: represents 198,000 teachers, school administrators, college professors and school board members

Association of American Medical Colleges: represents 126 U.S. medical schools, 450 teaching hospitals, and 94 academic professional societies

Association of Maternal and Child Health Programs: represents 269 Maternal and Child Health Program directors and staff

Association of Schools of Public Health: represents 14,500 faculty and students at 27 accredited schools of public health

Association of State and Territorial Dental Directors: represents 44 state dental directors nationwide

Association of State and Territorial Health Officials: represents 58 health officers from each of the United States and its territories

Association of Women's Health, Obstetric and Neonatal Nurses: represents 24,700 nurses

Council of Chief State School Officers: represents 56 public officials who head departments of elementary and secondary education in each state and extrastate jurisdiction

Council of the Great City Schools: represents 47 of the largest urban public school districts in the United States

Healthy Mothers, Healthy Babies Coalition: represents over 100 non-profit health education groups, and state and local education groups

National Alliance of Black School Educators: represents 4,000 African-American educators

National Association for Asian & Pacific American Education: represents approximately 500 educators concerned for the educational well-being of Asian and Pacific American students

National Association for the Education of Young Children: represents over 93,000 professionals and others who study or are interested in childhood education and development

National Association of Children's Hospitals and Related Institutions: represents 108 hospitals

National Association of Community Health Centers: represents 800 community, migrant and homeless primary health care centers serving over 8 million patients in medically undeserved areas. Centers employ or contract with over 4,000 primary care physicians and 7,250 nurses and mid-level practitioners

National Association of Elementary School Principals: represents 26,000 elementary and middle school principals in the United States, Canada and overseas.

National Association of Hispanic Nurses: represents 1,000 Hispanic nurses

National Association of Partners in Education: represents 5,500 volunteers, presidents and executives of private businesses, teachers and administrators

National Association of Pediatric Nurse Associates and Practitioners: represents 4,500 pediatric nurse associates and practitioners

National Association of School Nurses, Inc.: represents 8,000 school nurses

National Association of Secondary School Principals: represents 41,000 secondary school principals, administrators, guidance counselors, activities directors and college professors

National Association of Social Workers, Inc.: represents 145,000 professionals and para-professionals in the field of social work

National Association of State Boards of Education: represents state and territorial boards of education

National Association of State School Nurse Consultants: represents over 20,000 school nurses in 12,000 school districts with responsibility for comprehensive school health services programs

National Association of WIC Directors: represents 1,300 state directors, state nutrition coordinators, local agency directors, and Native American WIC directors

National Black Nurses' Association: represents 7,000 African-American nurses

National Coalition of Hispanic Health and Human Services Organizations (COSSMHO): represents 12,000 organizations serving the Hispanic population, representing Hispanic physicians, nurses and students

National Community Education Association: represents 1,550 teachers, superintendents, administrators, community education directors and coordinators, faculty and administrators of teacher education institutions and programs, community activists, private businesses and state administrators

National Education Association: represents 2.1 million K-12 classroom teachers, professors, educational support personnel and students

National Head Start Association: represents 5,000 professionals working with Head Start programs nationwide

National Indian Education Association: represents 2,700 individuals dedicated to promoting quality education for American Indian and Alaskan Native people

National Medical Association: represents 16,500 primarily African-American minority physicians

National Mental Health Association: represents 450 local affiliate mental health associations, comprised of mental health care providers and clients, and community mental health centers

National Perinatal Association: represents 2,500 physicians, nurses, nurse-midwives, social workers and consumers of perinatal services

The National PTA (National Congress of Parents and Teachers): represents 6.8 million parents, K-12 classroom teachers, principals, school administrators and students

National Rural Health Association: represents 2,000 community, migrant and homeless health centers and their staffs

National School Boards Association: a 54-member not-for-profit federation of state associations of school boards across the U.S. and the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands, representing the nation's 95,000 school board members who govern 15,025 local school districts serving more than 40 million public school students

National School Public Relations Association: represents 2,200 teachers, principals, administrators, retired teachers, students and public relations personnel

Society for Neuroscience: represents 25,000 neuroscientists

Zero to Three/National Center for Clinical Infant Programs: Represents over 7,500 programs for high risk children and families, as well as individuals

Endnotes

[1] Coutinho, Martha J. "The National Profile and Recent Studies Regarding Characteristics, Integration, Secondary School Experiences, and Transitions of Youth with Specific Learning Disabilities: Summary and Implications." Pp. 13-45 in *Secondary Education and Beyond: Providing Opportunities for Students with Learning Disabilities*. Ann Robinson, Ed. Pittsburgh, PA: Learning Disabilities Association, 1995. Although estimates put the prevalence of learning disabilities at between 5 and 15 percent of the population, some school systems budget special education services for a lower percentage of their students.

[2] Silver, L. B. Preface. *Child and Adolescent Psychiatry Clinics in North America* (Mosby) 1993; 2(2): xiii-xiv. In Roger A. Brumback. "Special Supplement on Learning Disabilities — Why?" P. S1. *Journal of Child Neurology* (Decker), Volume 10, Supplement No. 1, January 1995.

[3] Federal law (through the Individuals with Disabilities Education Act) defines learning disabilities as the following: The term "children with specific learning disabilities" means those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. Such disorders include such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include children who have learning problems which are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (IDEA, Part A, Sec. 602, [15].)

[4] Some states require that a student show an "absolute" discrepancy, usually defined in terms of a specific number of points or standard deviations on a test, to qualify as learning disabled while other states utilize what is termed a "regression formula" that allows the discrepancy to vary with both age and general intelligence. Such a formula recognizes that it may be more difficult for younger children with learning disabilities to be sufficiently behind their grade placement level to qualify for services. There is sufficient variation in the diagnostic criteria among states that when a family moves to a different state, their child may move in or out of eligibility for special education services despite identical test scores.

[5] Federal law mandates states to allow professionals (both those employed by the board of education as well as private consultants) sufficient leeway to balance their own clinical judgement against test scores. For example, children who are struggling with learning and may have been diagnosed as having a learning disability but who miss the state discrepancy formula cutoff may still be documented as needing services based on professional judgment. Federal law, under IDEA Reg. 300.532 and Reg 300.533, provides that (1) "No single procedure is used as the sole criterion for determining an appropriate educational program for a child," and (2) in determining if a child exhibits a "severe discrepancy between achievement and intellectual ability" the multi-disciplinary team "shall ... draw upon information from a variety of sources," as they decide on eligibility for special education services.

[6] Webster's defines etiology as a cause or origin, or more specifically "all of the causes of a disease or abnormal condition" as well as "the branch of knowledge dealing with causes." *Webster's New Collegiate Dictionary*. Springfield, MA: G. & C. Merriam Company, 1976.

[7] The Individuals with Disabilities Education Act (IDEA) is the main source of federal support for educational services to disabled children — including children with learning disabilities. The act in its current form was passed in 1975 (modifying a 1970 change to title VI of public law 91-230) and was originally known as the "Education of the Handicapped Act." According to the "General Provisions" section of IDEA, its purpose is to, "assure that all children with disabilities have available to them, within the time periods specified ... a free appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of children with disabilities and their parents or guardians are protected, to assist States and their localities to provide for the education of all children with disabilities, and to assess and assure the effectiveness of efforts to educate children with disabilities." IDEA is a multi-billion dollar financing source for state and local education agencies.

The core of IDEA is permanently authorized legislation but several ancillary parts are up for re-authorization this year — a fact that has opened the door to considerable debate, especially around the issue of discipline. A number of interest groups are seeking to promote changes in local school authority and financing structures through the re-authorization. Wrangling over IDEA re-authorization began last year with hearings and will likely end in debate over specific legislation sometime early in 1996 (as of this publication's deadline a bill was expected in March in the Senate and by May in the House). The House, which has been the forum for most dispute, will handle IDEA in its Economic and Educational Opportunities Committee, and the Senate will take up the issue through its Labor and Human Resources Committee.

[8] The Clinical Evaluation of Language Fundamentals — Revised (CELF-R) test has a mean of 100 and a standard deviation of 15.

[9] While many students with learning disabilities show marked improvement on un-timed tests, students without learning disabilities who are given more time to complete an examination for which they are not prepared do not get a better grade — this would suggest that untimed tests are uniquely helpful to students with learning disabilities who simply need more time to read questions, process their thoughts and write out their answers. See M. K. Runyan. "The Effect of Extra Time on Reading Comprehension Scores for University Students with and without Learning Disabilities." *Journal of Learning*

Disabilities (Volume twenty-four, 1991) Pp. 104-108.

[10] It is the position of the Learning Disabilities Association of America (LDA) that "decisions regarding educational placement of students with disabilities must be based on the needs of each individual student rather than administrative convenience or budgetary considerations and must be the result of a cooperative effort involving the educators, parents, and the student when appropriate." As a result, LDA does not support full inclusion or "any policies that mandate the same placement, instruction, or treatment for all students with learning disabilities." The LDA does acknowledge that "many students with learning disabilities benefit from being served in the regular education classroom," and bases its position with regard to inclusion on its belief that the rights and needs of individual students argue against the establishment of blanket policies designed to promote the provision of total education in the regular classroom regardless of the nature or severity of a students disability since such policies may in effect act contrary to a student's best interests. ("Position Paper on Full Inclusion of All Students with Learning Disabilities in the Regular Education Classroom." Pittsburgh, PA: Learning Disabilities Association of America, 1993.) Although perhaps for differing reasons, LDA is in agreement with several major educational organizations and advocacy groups on the issue of inclusion.

[11] "Planning for Inclusion." *NICHCY News Digest*, Volume 5, Number 1. Lisa Küpper, Ed. Washington, DC: Academy for Educational Development, 1995.

[12] According to *Meeting the ADD Challenge: A Practical Guide for Teachers*, "Ritalin has been used in the treatment of children with hyperactivity since the mid-1950s. By the 1970s Ritalin was in widespread use. During the following decade, many abuses of this medication took place as a result of its being prescribed for behavior control without careful assessment and diagnosis. These abuses contributed to a backlash in which teachers, parents, and professionals cautioned against its use." Steven B. Gordon and Michael J. Asher. *Meeting the ADD Challenge: A Practical Guide for Teachers.* Champaign, IL: Research Press, 1994. On the other hand, many children with ADD have been deprived of the benefits of such medication because of public and professional miseducation.

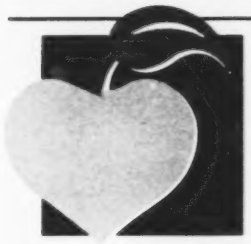
[13] Individuals with Disabilities Education Act (P.L. 191-476), Section 300.18.

[14] Statistics here and in the next paragraph come from Wagner, M.; D'Amico, R.; Marder, C.; Newman, L.; and Blackorby, J. *What Happens Next? Trends in Post-School Outcomes of Youth with Disabilities: The Second Comprehensive Report from the National Longitudinal Transition Study of Special Education Students.* Menlow Park, CA: SRI International, 1992.

[15] For more information regarding parent support groups in your community, contact the national office of the LDA at 4156 Library Road, Pittsburgh, PA 15234-1349; (412) 341-1515, phone.

[16] This information is available, among other places, in the testimony of Glenn Young before the Subcommittee on Children, Youth and Families of the Economic and Educational Opportunities Committee of the U.S. House of Representatives on June 27, 1995. Also see, *The Learning Disabled in Employment and Training Programs.* Washington, DC: U.S. Department of Labor, 1991.

[17] Troccoli, Karen B. "Fetal Alcohol Syndrome: The Impact on Children's Ability to Learn." Washington, DC: National Health & Education Consortium, 1994. P. 2.



National Health & Education Consortium

NHEC Overview

The health and education of children are intricately linked. Yet, for a variety of historical and societal reasons, these two critical facets of children's development have been separated. As a result, society finds itself either concerned about the "health" of children or the "education" of children, but is all-too-rarely aware of how the two fields are interdependent.

In 1990, in recognition of the need for better integration of health and education programs for children in this country, the National Health & Education Consortium was established by the National Commission to Prevent Infant Mortality (NCPIM) and the Institute for Educational Leadership (IEL) with core financial support from the Prudential Foundation. As a result of this special partnership, NHEC, from its inception, was a public/private partnership grounded in both the education and health communities.

NHEC now brings together 58 national health and education professional member associations, representing some 12 million constituents, to design strategies to better coordinate health and education services and programs. It does not represent any particular special interest group, but uniquely can mobilize the collective influence of national membership associations on behalf of its mission.

The National Health & Education Consortium contends that children must be healthy to be able to learn, and that they must be educated to keep themselves healthy for a lifetime. Millions of infants and children lack access to health care or suffer from poor health, leaving them vulnerable to physical and learning problems. And, far too often, information on how to maintain a healthy lifestyle does not reach those in greatest need. Coordination of health and education services for children can enhance their ability to learn, succeed in school and become productive members of society.

NHEC's goals are:

- to improve public policy by addressing the need for a better coordinated health and education delivery system;
- to strengthen communication and dissemination of information between health and education practitioners and policy makers; and,
- to identify exemplary program models and practices which more effectively integrate health and education services.

To accomplish its mission, NHEC produces occasional papers, special reports and major research documents focused on various topics relating to collaboration between the health and education communities. NHEC also provides training and technical assistance to federal, state and local leaders to promote collaborative efforts at all levels of government and in the private sector, and operates a number of special programs.

REPLACEMENT PAGE FOR PAGE 51

NATIONAL HEALTH & EDUCATION CONSORTIUM
PUBLICATION ORDER FORM

Please indicate the number of publications requested in the spaces provided.

__*The Invisible Disability: Understanding Learning Disabilities in the Context of Health and Education* (Occasional Paper # 11) – Dr. Pasquale Accardo of Cardinal Glennon Children's Hospital of St. Louis examines the roles that the medical/health and education communities can and must play to enable children with learning disabilities to achieve to their maximum learning potential. (1996, $7.50)

__*The Big Red How-To Guide: Planning a Health Fair for Children and Families* (Training Material) – provides step-by-step guidance on planning and implementing a local health fair. (1995, $15)

__*Where The Kids Are: How to Work with Schools to Create Elementary School-Based Health Centers, A Primer for Health Professionals* (Special Report) – targeted to health providers who want to work with educators, the report provides an introduction to school staffing, funding and policy. Includes information on the rationale for elementary health centers and contact names for successful programs. (1995, $15)

__*Hidden Casualties: The Relationship Between Violence and Learning* (Special Report) – Deborah Prothrow-Stith and Sher Quaday of the Harvard School of Public Health take a developmental approach to explore the impact of violence on a child's receptivity to education and ability to learn. (1995, $10)

__ *Starting Young: School-Based Health Centers at the Elementary Level* (Special Report) – provides historical and current info. on school-based health care with additional info. on staffing patterns, funding, and the value of preventive health care to elementary age children; produced in collaboration with the National Association of Elementary School Principals. (1995, $10)

___*Putting Children First: State-Level Collaboration Between Education and Health* (Special Report) – describes interventions used in four pilot states (Florida, Maryland, New Mexico and Texas) to promote collaboration between the health and education sectors; provides suggestions to state leaders working to foster similar collaborative relationships. (1995, $10)

___*Fetal Alcohol Syndrome: The Impact on Children's Ability to Learn* (Occasional Paper #10) – examines the root causes and consequences of Fetal Alcohol Syndrome and its impact on a child's ability to learn; describes some innovative programs and suggests recommendations for action; produced in collaboration with the Children of Alcoholics Foundation. (1994, $5)

___*Texas' Youth, Texas' Future* (Special Report) –produced for NHEC by IEL's Center for Demographic Policy, identifies the demographic trends of Texas' children at health and educational risk and provides data to facilitate collaborative planning strategies for the education and health systems. (1993, $12)

__*Florida's Youth, Florida's Future* (Special Report) – produced for NHEC by IEL's Center for Demographic Policy, identifies the demographic trends of Florida's children at health and educational risk and provides data to facilitate collaborative planning strategies for the education and health systems. (1993, $12)

___*School Nursing: Trends for the Future* (Occasional Paper #9) – Carole Passarelli of the Yale School of Nursing highlights the increased need for school health nurses – providing recommendations for the best use of these essential professionals, illustrating various settings in which school nurses play an integral role, and describing current progressive school nurse programs. (1993, $5)

____*Eat to Learn, Learn to Eat: The Link Between Nutrition and Learning in Children* (Special Report/Occasional Paper #7) – provides an overview of the link between nutrition and learning in children; describes the successes and limitations of public and private child nutrition programs; suggests action steps improve children's nutritional status; produced in collaboration with the American School Food Service Association. (1993, $10)

____*Children's Mental Health and Their Ability to Learn* (Occasional Paper #8) – written by the National Mental Health Association, examines the current status of children's mental health and its impact on children's ability to learn; includes info. on services available to address needs and suggests policy and action steps to improve the provision, availability and accessibility of these services. (1993, $5)

____*Creating Sound Minds and Bodies: Health and Education Working Together.* (Special Report) This special report examines health/education policy environments and suggests collaboration at the federal, state, and local levels. It also catalogues a number of ongoing activities and provides an annotated bibliography of resources. (1992, $10)

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